

PSYCHIC PHENOMENA
SCIENCE AND IMMORTALITY



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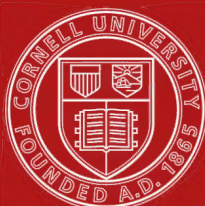
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PSYCHIC PHENOMENA SCIENCE AND IMMORTALITY

BEING A FURTHER EXCURSION INTO UNSEEN REALMS
BEYOND THE POINT PREVIOUSLY EXPLORED
IN "MODERN LIGHT ON IMMORTALITY"
AND A SEQUEL TO THAT PRE-
VIOUS RECORD

BY

HENRY FRANK

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A WORD *to* CRITICS

IN JUSTICE TO MYSELF I
ASK BUT ONE FAIR CONDI-
TION FROM ALL CRITICS :

*Let the book be read through
and the argument in its en-
tirety apprehended before
final judgment is pronounced*

PREFACE

The author trusts that the readers of his books on Immortality will not misinterpret his purpose or fail to appreciate his point of view. He is not bold enough to pretend to present an unquestioned demonstration or otherwise, of this human possibility. He has, however, been much misunderstood by some of his critics. Those who are skeptical of the possibility of after-death existence, observing that the final conclusion, to which the logic of the scientific data which the author had assembled seemed to lead, was favorable to such a theory, criticised him on the ground that he had presumed to set forth a positive proof, under scientific guise, of such existence. On the other hand, he is covered with favorable adulation by those who are temperamental believers in the after-life, because they assume that the author's argument has presented an unquestioned demonstration of the doctrine, summoning science to his assistance.

In point of fact, the author has been alike misinterpreted by both friendly and unfriendly critic. He had thought that he had stated his own mental attitude toward the problem as clearly as he could in his former work, "Modern Light on Immortality," in which he said:

"The author of this work does not profess to have advanced an argument which finally proves the immortality of the soul. Neither does he pretend to have advanced an argument in disproof of or pre-

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judicial to such a demonstration. He set out with the one and only determination of finding what in nature and human experience, in philosophy and the natural sciences, might enable him to reach a rational conclusion concerning so profound and world-consequential a problem."

And he has not altered his attitude one whit since, nor does he ever expect to. In the present effort, he is presenting the book which he had promised when reaching a certain stage in the discussion that formed the substance of the former volume, whose length precluded the review of psychic phenomena and their bearing on the tentative deductions he had drawn from the physical or natural sciences.

His object in discussing these phenomena in the present volume is to attempt to bring them into logical alignment with the recognised material phenomena of the natural universe. That Nature can be severed into two or more differentiable planes of activity, whose laws actuate diverse phenomena, mutually contradictory, the author could not suffer himself to believe. Accepting, as he opines all rational thinkers must, the absolute dictum that Nature is a Unity both in substance and the laws whereby her processes are determined, he could not permit himself to believe that ever in human experience aught would transpire which would contravene or disprove this principle.

It was, therefore, incumbent on him, as one who had determined to enter on the quest for truth wheresoever it might lead him, not to shut his eyes to what observation and experience had thrust be-

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fore them, but, with calm faith in the scientific method and the possibility of discovery, to meet the challenge and demand of Nature that she give a consistent and convincing answer.

Nature cannot fail. Nature cannot be self-inconsistent or self-contradictory. Of this he felt sure. Yet whether he or anybody else would be able to read aright what answer Nature might give, this was of course, the problem. This, indeed, is still the problem, and probably ever will be. For that science will speedily discover to us the final and indisputable answer to this riddle is, perhaps, more than we should expect. It seems, however, to the author that she is much nearer to such a final answer than ever before in human history.

The author is frank to confess that the problem of the after-death existence has troubled him from his early youth; troubled him even to annoyance. Not that he means to imply he has been disturbed because he could not be sure of immortal existence, nor that anybody else could, by reason of the impossibility of its discovery or demonstration. For, personally, he has come to think with thousands of others, that resignation to unbelief is far more rational than resignation to belief in matters which are beyond the reach of human reason.

He is free to confess that he is no longer affected by the tinge of sorrow which formerly beset him in contemplating the possibility of life's close when one is finally folded in the sleep of death. The picture of endless existence beyond the grave is not all as beautiful and void of shadow as we are wont to

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conceive it. The little life we now live is so fraught with disappointment and dismay that to conceive its ceaseless continuance would be but to add horror to despair. Therefore faith has always held out the picture of bliss as the quality of the future life, howbeit reason seemed to discern no logical ground for such a pleasing fore-glimpse.

The author confesses that if he is confronted with the question of the mere *desirability* of immortal existence, he is forced to register a negative reply. For any possible future existence must be predicated on the present existence, and so fraught is this with suffering and fatigue, that endless continuance of it must be regarded rather as a misfortune than a blessing.

“The worldly hope men set their hearts upon,
Turns ashes—or it prospers; and anon,
Like snow upon the desert’s dusty face,
Lighting a little hour or two—is gone!”

However, with man the problem is not, “Is it a thing to be desired that he live beyond the grave?” but that other and far more perplexing question, “Is it a fact that he does so live when death has wrapped him in his sable robe?” Nature asks not how or what or when man wishes. She is wholly unconcerned in man’s desires, whims, or predilections. Her mission is to act; man’s indeflectible fate ensues. His problem is not “What would I have?” but “What has Nature set for me?” Hence, the author would repeat, the problem of the after-existence has caused him much mental annoyance,

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not that he feared or halted at the possible answer, but because the lips of the sphinx stayed so distressfully still and silent! Let her but speak, he thought, that men may know. Better a knowledge of the law that shall declare man's ultimate and eternal silence than distress, anxiety and bewilderment because of ungratified curiosity!

Again, the author found, at least to his own satisfaction, after traversing a long and tortuous trail athwart the plains of "forgotten lore" and the fatuous faiths which have so often vanished under the light of advancing intelligence, that not in philosophy, which is always speculative and uncertain, nor in religion, which is temperamental and but marks the residual tracings of human experience in the intuitions of humankind, would or could the answer be found to this age-confusing problem.

Nowhere else, it seems to him, can man turn for satisfactory knowledge as to this as well as all other mental perplexities, but to Science, whose mirror, however much betimes distorted, yet images for man the only trustworthy reflection of Nature's mysterious truths.

In his former work the author sought whether, perchance, Nature may have suffered any intimations concerning this mighty problem to be revealed in the laws that pervade the physical activities of the universe. He thought he detected some such intimations, which, while not wholly convincing, were tentatively reassuring. He did not feel unflinchingly certain; surely not enough so to become dogmatic or dictatorially insistent on his de-

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ductions. Nevertheless, he cannot but feel that his deductions were logically consistent with exact and indisputable scientific data and discovery, to the reinforcement of which the present volume will afford some ammunition. He warned his readers that his conclusions, founded on natural facts, were not complete until there was added thereto the category of phenomena which many have claimed to witness, sometimes to their horror, often to their confusion, and not a little to the emphasis of their naturally superstitious inclination.

These phenomena, if they be actual, cannot be ignored on the lame plea that science has no concern with fables, myths and superstitions. It is the one business of science to analyse, dissect and comprehend the nature, origin and purport of whatever forces may have compounded the ignorance of man, no less than the forces which have enhanced his intelligence. If, then, these alleged phenomena actually exist,—that is, if they are facts in Nature,—they must be included in the curriculum of scientific study, analysed with scientific precision and generalised with logical acumen. If perchance they have any bearing on the possibility of man's after existence, either negative or affirmative, then it is the duty of science to make the declaration fearlessly and without bias.

A few noble and conspicuous voices have already spoken on this problem in the light of these phenomena and in the name of accredited science. If the author makes so bold to mingle his humble voice with theirs, that peradventure, its faint echo

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may penetrate the colonnades of the sacred temple, it is with the hope that it may call attention to certain legitimate interpretations and logical deductions which he thinks have not as yet been duly registered.

He wishes it to be distinctly understood that he does not enter the list on the pretension that he is an original experimenter. He is wholly dependent for his scientific facts, both physical and psychical, on such authorities, which he believes are reliable, as are properly indicated in the pages of this book.

New York City.

H. F.

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INTRODUCTION

I

Having in the previous volume* attempted a survey of the history of the soul and its possibilities from the point of view of its physical basis, we shall now undertake another exploration into its mysterious depths, which will call for different and more uncertain guides.

The problem here presented is whether the activities of the soul are capable of analysis, or whether it occupies a plane of activity wholly separate from that of the body. We shall, to the end of attempting an answer to this question, be forced to enter into the realm of the so-called arcane and recondite, the occult and metaphysical. Is indeed all our scientific knowledge confined within the limits of the sensuous perception of the mind; or has the mind a distinct realm from whose subtle sphere the studies of mankind are forever barred?

It is only in recent years that science, as such, has permitted itself to look even askance at the problem presented. Fifty years ago, and less, it was outlawed from the court of sane investigation and relegated to the limbo of fools and idiots. But a series of persistent experiences, howbeit emanating originally from a crude and uncultured source, has succeeded in foisting itself upon the unwilling attention of the most strictly scientific minds of the age, with the result that many of them are trem-

*"Modern Light on Immortality."

bling on the verge of precipitous descent into the occult, while others are seeking quite as anxiously for a naturalisation of the alleged supernatural and such an explanation as shall bring this unclassified residuum of human experience within the compass of the commonplace.

Thus Professor James does not hesitate to proclaim his scientific discomfiture and his reluctant willingness to admit that there is a plane of accessible experience which is essentially metaphysical and inexplicable by present known physical laws.

He says:*

"We all, scientists and non-scientists, live on some inclined plane of credulity. The plane tips one way in one man, another way in another; and may he whose plane tips in no way be the first to cast a stone! As a matter of fact, the trances I speak of have broken down for my own mind the limits of the admitted order of Nature. Science, so far as science denies such exceptional occurrences, lies prostrate in the dust for me; and the most urgent intellectual need which I feel for the present is that science be built up again in the form in which such things may have a positive place. Science, like life, feeds on its own decay. New facts burst old rules; then newly divine conceptions bind old and new together into reconciling law."

Of course to minds like Professors Lankester and Haeckel such language is but little short of jargon. It would be untruthful and absurd to assert that the scientific world as such even goes so far as to admit such events as actual experiences. On the contrary they insist that either the events never took

*"The Will to Believe," p. 320.

place or they were the exhibitions of discoverable fraud or the result of the mental obfuscation of the experimenters. The conservative and self-imposed attitude of restriction which traditional science has espoused is well set forth by Flammarion, who says:*

"I am acquainted with erudite men of genius, members of the Academy of Science, professors at the University, masters in great schools, who reason in the following way: 'Such and such phenomena are impossible because they are in contradiction with the actual state of science. We should only admit what we can explain.' They call that scientific reasoning!

"Examples:—Frauenhafer discovers that the solar spectrum is covered by dark lines. These dark lines could not be explained in his time. Therefore we ought not to believe them. Newton discovers that the stars move as if they were governed by an attractive force. This attraction could not be explained in his time. Newton himself takes pains to declare that he does not wish to explain it by hypothesis—'*Hypotheses non fingo*'—(I do not make hypotheses). So, after the reasoning of our pseudo logicians, we ought not to admit universal gravitation. Oxygen combined with hydrogen forms water. How? We do not know. Hence we ought not to admit the fact."

Thus with keen sarcasm orates the eloquent French astronomer. Another attitude assumed by nonplussed scientists who have themselves suddenly been thrust into a bewildering realm of alleged facts that utterly demolish all their traditional theories of the universe, is to throw their hands up in de-

*"Mysterious Forces," p. 18.

spair. Virchow, the eminent German biologist and one of the discoverers of the cellular unit of organic life, when he was called upon to make an examination of a startling case of stigmata, which broke out on the body of Louise Lateau, could reach no other conclusion in his report to the Berlin Academy than that it was either *fraud or miracle!* But now we know that the despair of science need not go so far. Today a new psychology and physiology permit us to understand that stigmata and all other freakish and extravagant conditions of the physical organism may be referred to distinctive mental energies as the source of their sometime mysterious origin.

The primary and immediate business of science, manifestly, is not to explain but to discover. The book of Nature must be read, and no matter what her hieroglyphics reveal, and howsoever such revelations may confuse and contradict the heretofore imagined laws by which her activities are governed, she teaches us at last that throughout her realms unity prevails and what seems to be contradiction is, in fact, a confirmation of some law which we had not yet fully comprehended.

The only rational attitude for modern science to assume regarding the recently discovered and alleged occult facts of life is that eloquently set forth by Sir William Crookes, who until recently was the only physicist that bravely defied the scorn of his confreres and undertook to learn the truth by distinctive and unequivocal scientific methods. Although the results he procured were so sensational

and startling as to horrify, if not disgust, the entire scientific world, and threatened for a time to cause the celebrated chemist the loss of professional respect and the heretofore honored position he had held, he insisted that what he saw was true, and however much he might be reviled and traduced he would not run from his post as a scientific discoverer. But that was as far as he went. He did not attempt to explain, except in a most tentative and timid manner. What he wanted the world to know was the facts that existed; he was willing to wait for the time when more was known of the underlying laws before he undertook what might be a satisfactory explanation. Thus he says in his opening address to the British Association at Edinburg in 1871:

“Sir William Thompson said, ‘Science is bound by the everlasting law of honor to face fearlessly every problem which can fairly be presented to it.’ My object in thus placing on record the results of a very remarkable series of experiments is to present such a problem which, according to Sir William Thompson ‘Science is bound by the everlasting law of honor to face fearlessly.’ . . . *Remember I hazard no hypothesis or theory whatever*; I merely vouch for certain facts; my only object being—*Truth!* Doubt; but do not deny. Point out by the severest criticism what are considered fallacies in my experimental tests, and suggest more conclusive trials; but do not let us hastily call our senses lying witnesses merely because they testify against preconceptions.”

So amazing, however, were the alleged discoveries of this eminent scientist that for a time it caused him to hesitate on the verge of bewilderment and ask himself whether he was really deprived of his sanity.

"The phenomena I am prepared to attest," he exclaims, "are so extraordinary and so opposed to the most firmly rooted articles of scientific belief—amongst others, the ubiquity and invariable action of the force of gravitation—that even now, after recalling the details of what I witnessed, there is an antagonism in my mind between *reason*, which pronounces it to be scientifically impossible, and the consciousness that my senses, both of touch and sight,—and these corroborated as they were by the senses of all who were present,—are not lying witnesses when they testify against my preconceptions."

It is into this realm of modern scientific investigation we now propose to enter in order to learn whether the facts revealed have any corroborative bearing on the hypothesis of the after life of the soul of the deceased.

II

In attempting an exploration of unfrequented territory of research, too much caution cannot be exercised as to the attitude of mind assumed. A strictly logical mental attitude is not common among men, and almost everybody, except trained experts, finds it difficult to maintain it for any great length of time. We are so constituted by education,

tradition and predilection, that we prefer to regard our desires as logical conclusions rather than accept the deductions that logic compels as the things we should desire.

Few of us can instantaneously relinquish a life-long conviction on the presentation of irrefutable proof of its untruthfulness or absurdity. The history of science proves that the saddest and bloodiest pages in human annals are the issue of man's indisposition to admit what natural discoveries implacably demanded. Had the education of the past centuries predisposed man to become the docile and unswerving votary of Nature, seeking only truth in her book of mysteries and asking for no other divulgements than such as man could extract from her infinite sources, civilisation would be far in advance of its present stage and the conquering crown of science more gloriously jewelled.

It has, however, been the persistent trend of traditional education, nursed and sponsored by religious supervision, to cultivate the spiritual passions rather than the rational faculties, to teach men how to believe rather than how to know, to be satisfied with authoritative instruction rather than with nothing but conscientious research and logical deduction. Hence the scientific attitude of mind is today almost totally a *terra incognita* to the average student and thinker, for which almost everybody substitutes temperamental predisposition or religious bias. This is strictly true when a problem is to be discussed which relates wholly to the as yet unknown or undiscovered, and is generally

relegated to the realm of abstract speculation. How few are there who can calmly and with unbiased predilection approach the investigation of the human soul and its possible future, whether it be related to the present body or a problematical body which it may elsewhere assume? We, most of us, so far as this problem is regarded, can think only in terms of desire, or at least but slightly in the logical terms that reason demands. Nor is this true only of the traditional believer. It is none the less true, however negatively revealed, in the attitude of the disbeliever. If a man has been religiously reared to believe in the soul's existence and its assured immortality, it is quite impossible to secure his sincere attention to a consideration of data or natural discoveries that apparently annihilate such belief. But likewise is it also true that when one is trained to disbelieve in any possible proof of the phenomena relating to the soul's existence, such an one assumes an attitude of mind which becomes impervious to the intrusion of any contradictory interpretation.

Some go so far as to contend that belief at all events is the proper attitude of mind, even if temporarily such belief leads into the ditch of error. Professor James boldly contends that "our passionate nature not only lawfully may, but must, decide an option that cannot by its nature be decided on intellectual grounds," which, if it be the psychologically necessary state of mind, would relegate reason to a secondary and exalt emotion to a primary principle of our nature. He scouts Clifford's

contention that the mind should hold itself in abeyance, refusing to take sides or accept sheer belief void of proof, as being an unnecessarily nervous apprehension of being duped. "For my own part," he exclaims, "I have also a horror of being duped; but I believe that worse things than being duped may happen to a man in this world; . . . Our errors are surely not such awfully solemn things. . . a certain lightness of heart seems healthier than this excessive nervousness on their behalf,"* etc.

It would seem, however, that this very stubbornness of both belief and disbelief is the primary source of all the opposition to progress which has characterised the ages. Just because mankind have schooled themselves to be obedient to their passionate natures and to bar the possibility of research which apparently makes against such passionate predilection, has science crept or limped through the ages rather than stalked with bold and certain stride. However, it may be, as Professor James contends, that this disposition is an inherent part of our natures and no method of education can free us from its embarrassment. If so, we can but make the best of it, remembering always that, while we may be often dependent on our passionate beliefs, they must not be mistaken for ultimate truths, which alone can be discovered by research and the logical deduction of principles from scientific data.

We shall find in our investigation of the problem of immortality that the law which James proclaims is often enough evidenced. Scarcely any writer,

*"The Will to Believe," pp. 11 to 19.

at least until recent date, seems ever to have approached the problem from the strictly intellectual side, but always from the passional; for both scientists and religionists seem to be swept away by their prejudices when they are confronted by the stupendous question.

I quite agree with Professor Hyslop in replying to Professor Muensterberg's strictures on his spiritistic predilections when he says:*

"Men make a great mistake if they suppose that scepticism has no bias. It has the same bias as faith, and those who understand human nature will readily admit this. The reaction against the ancient materialism in the Christian period brought with it a strong antagonism to the 'natural' and an overwhelming interest in the 'supernatural.' The pendulum has swung the other way, and now science is just as Catonic in its *delenda est* about the 'supernatural' as ever theology was about the 'natural.' A man can believe in both or neither of them as definition may determine in this age. We have gotten far beyond the categories of previous centuries in our thinking about such things."

In spite of the law on which James insists, and which Hyslop so heartily defends, we shall attempt to maintain in this work precisely the same attitude toward the perplexing problem of immortality which we undertook in our previous work, "Modern Light on Immortality." We have no final and absolute hypothesis for which we shall contend as a *sine qua non*. We have, indeed, an hypothesis, one which has come as the outgrowth of systematic

*"Journal of Psychical Research," January, 1908, p. 24.

study and research; but we are by no means disposed to insist upon it as ultimate and incontrovertible, or one for which we shall fight a moment after its inconsistency or logical inconclusiveness may have been detected. We have been not a little surprised nor less gratified at the favorable reception the form of the hypothesis presented in the previous volume has received. While a few critics have ventured to question or contradict the conclusions set forth in that work, the great majority have been disposed to regard them as logical and convincing. Nevertheless, not until the hypothesis has been thoroughly tried can we feel assured that it leads to a final truth. As intimated in the work just mentioned, the data there presented were not sufficiently comprehensive to carry the student far enough, because of the omission of all experiences relating to supernormal phases of psychology. We promised a subsequent volume in which special attention should be paid to these phenomena and their bearing on the hypothesis which we had ventured to present. The object of this work is to attempt the adventure there foretold.

III

Before we proceed, however, it is quite necessary that the reader clearly understand the use and application which we propose to make of alleged psychic facts or phenomena in extra-mental fields of human activity. It will not be necessary for us in this work to weigh the evidence presented in behalf of such facts. Incidentally we may touch on

this phase of the subject, but chiefly that is left for the psychical researchers and their associate students. What we wish to attempt here is a scientific application of such alleged facts to an hypothesis quite different from what is customary.

The argument commonly employed is that these psychic facts clearly prove the possibility of communion between the departed spirits and those still remaining in the flesh. In the language of Dr. F. W. Myers, who seemed unqualifiedly convinced both of the verity of the phenomena and their logical demonstration of an after life, "the records of the Society for Psychical Research have actually proved to my mind, first survival, pure and simple; the persistence of the spirit's life as a structural law of the universe; second, that between the spiritual and the material worlds an avenue of communication does in fact exist; . . . third, that the surviving spirit retains, at least in some measure, the memories and loves of the earth."

In this statement Dr. Myers seems to have totally surrendered to the spiritualist's claims and substantially transformed his scientific into a religious attitude. Elsewhere, however, he admits that the facts do not so strongly indicate the above conclusions, but are rather indicative of the activities of the subliminal self, or the sub-conscious plane of human experience. The Psychical Researchers themselves are by no means agreed in their deductions from the phenomena which they claim to have witnessed. Andrew Lang is still hugging the fence, Hyslop merely insinuates that the spiritistic theory

is the most plausible and best working hypothesis, while Podmore wholly rejects the theory and insists all can be explained by the principles of telepathy or the action of one mind on another, and even Dr. Crookes, after introducing us to all his startling experiences, finally admits that perhaps telepathy is more tenable as a theoretical explanation than spiritism.

On the contrary, independent investigators, such as Dr. T. J. Hudson, utterly discountenance the spiritist theory and insist that instead of the psychic faculties introducing us to a post-mortem world of spiritual entities, they are merely extra human faculties of such stupendous force their exercise through the agency of our too feeble frame tends to its degeneracy and thus prophesies their legitimate utility in a world where they can be exhibited through a more susceptible organism better adapted to their unfoldment.

The hypothesis I am here presenting is quite other than those briefly stated above. I shall undertake to discuss the proposition that, taking for granted the existence of the so-called extra-normal phenomena, they are probably the evidence of forces now existing within the human organism, which operate through the agency of a refined substance, constituting the secret seat of the psychic energies; and that this substance being potentially indestructible, may therefore become the plastic organ through which the mind may operate and manifest itself after the mortal frame of the visible man shall have expired.

In short, I shall hope to show that the objection so often raised that there can be no mental activity except through a visibly organised physical brain is not a tenable objection to the hypothesis of the possible after life of certain human individuals. It has been objected that in all the experience of the race a mental action has never been known to take place except through the instrumentality of a visibly material organ of mind or a brain. Nevertheless, certain recent discoveries seem to indicate the manifestation of mental activities that cannot be ascribed wholly to the operations of a visibly existing cerebral organ. True, no mental action is known except through the agency of an organised brain. But who shall say that there is not an invisible counterpart of the brain? Shall we be able to show that there may be what we might call an extra or complementary brain, though invisible, which is the immediate instrument of the psychic forces and which may continue to operate, after the physical death of the body; and that such an invisible brain has during life been in process of formation along with that of the exterior visible brain we now possess? This is the burden of the effort here attempted and to be set forth in the following pages.

But first, let us ask, when we speak of brain as the organ of thought, do we fully realise the limitation such a conception lays on thought as an active force in nature? True, we know of psychic activity only through the instrumentality of an organised brain. But do we not forget that the most constant and comprehensive action of the psychic energy

both in sensibility and in mentation occurs in such refined centres of the brain as never rise to the surface of consciousness? May we not find that such deep laid psychic and physical centres verge more closely than we were wont to suspect, on the immaterial ether, and thus constitute immaterial activities that operate beyond the limitations of the palpable brain? If we shall learn, for instance, that the energy of thought once escaping from the brain in which it originated becomes itself a free agent playing upon other brains and reproducing itself in other organisms; if we shall find that such a free and volatile energy (that is, a thought penetrating the ether) becomes latent or static, like other vibrations of the atmosphere, such as heat or electricity, and may combine with other free or floating thoughts and thus constitute an independently organised centre of energy; if we shall learn, in fact, that such organised psychic energies do seem to exist in the invisible void and seize upon individuals singly and collectively, constituting the sub-conscious force of social activity; may we not then conclude that thought, once generated, itself becomes a generating force, active on an invisible plane and organising in the ether itself such permanent centres as may be necessary for its achievements?

Just as we can trace the development of the physical brain from the first pulsation of primal amoeba to the complete convolutions of the human cerebrum, may we not likewise discern how the elements of thought, which from time immemorial

have operated in the cell tissues of the human system, have themselves become organised centres, slowly building up the brain substance that constitutes their present framework? In order to apprehend this principle we shall first review the direct action of thought on the brain and indicate how the interior cerebral centres are generated in the individual organism; then, second, we shall state how these centres are permanently organised, retaining latent psychic energy, subject at any time to dynamic expression, and constitute the realm of the alleged subconscious mind; third, how these interior psychic centres may so energise the external atmosphere as to cause thoughts to interchange between foreign brains, and thus discover, as it were, new abodes for themselves; and lastly, how these individually organised forms of thought or psychic expression may mutually organise, segregate themselves from all other forms of thought, and become an invisible potency affecting the history of the entire race. This demonstrated, it would seem we shall be forced to conclude that the invisible energy of mental action may operate in the ether like other physical forces and may generate within it fixed forms of expression with which we must calculate if we are to comprehend the possibilities of existence. If, in addition to this, we shall find that the substance of the brain through which this energy expresses itself is of a subtle and ultra-microscopical nature, and potentially indestructible, we shall, it would appear, have gathered sufficient data by which logically to

determine the possibility of the continued existence of the personal form of thought, known as consciousness, beyond the dissolution of the mortal frame.

Observing a globule of protoplasm the profoundest philosopher, the most penetrating chemist, is unable to prophesy its future career. Yet given a few hours, days or weeks, and the impenetrable chemical unit unfolds into a positive and predestined organism, dictated by the interior force of its being. Its history is written by the finger of fate. It must be precisely the thing it becomes and cannot be other. If we undertake to conceive the advent of the first drop of protoplasm upon this planet, we cannot cogitate upon the substance without supposing for it an antecedent history. From whatever source it was derived we know that certain forces have already been inwoven within its substance, which constitute its psychic energy and act as a directive potency in its organism. We cannot conceive of life so primal or ultimate, nor is such discoverable in nature, as to be totally void of psychic energy. Whence this energy? What is it?

If we are to accept the Darwinian theory, we must suppose that Nature had made myriad attempts at the production of protoplasmic substance before she finally succeeded, and that after only infinite failure at last was the efficient combination of primal units obtained, and the inorganic substance moulded into the magic form of living matter. In short, the primordial ether must needs

pass through infinite and unimaginative involutions and convolutions through countless myriads of years, before it is finally capable of assuming such expression as attains the lofty altitude of vital force. Vital force is but a differentiated form of the universal energy which emanates from and permeates the primal ether. Vital force is, however, according to this theory, comparatively speaking, a recently developed phase of universal energy. Therefore, it embodies the result of the age-evolving antecedent activity of primal force which finally achieves the vital form of expression. Such vital force has, therefore, an antecedent psychic history, and this ancient history is the source of the directing principle that organises and coördinates its manifestation.

The first amoeba or the primal protozoon, then, has already an ancient history indited in the mystery of its being. And this historic past is the god within, to speak mystically, or the psychic energy that becomes its controlling and directing force. Therefore what mind it has is evidently a manifestation of a force preceding its existence, and which constituted its morphogenic—or form-generating agency. Mind emanates from the primal ether, according to this exposition, the same as matter. All matter is then but involved mind. It must, then, needs be that primal ether is itself but germinal mind, or mind diffused in infinite substance. Hence we may well say that all matter is but an expression of psychical energy, of which the living force is the highest present known expression.

This same law runs through all the gradations of living bodies from the first protozoons to the highest multicellular forms. It is not only a general law applying to all forms of life, but it seems also to apply in detail to each distinctive organ and even to each individual cell of the metazoic bodies. Each organ, each cell, each interior cellular element, seems to be assigned its own particular form of energy, which orders and directs its life, superintending, guiding, defending, and restoring it in times of injury. Says Gustave Le Bon, speaking of this curious physiological fact:

“Even when we liken to physico-chemical forces, the vital forces manifested by living beings, it must be recognised that things happen as if there existed quite peculiar forces, some of which are intended to regulate the functions of the organs, and others to direct their force. . . .

“In spite of the efforts of thousands of workers, physiology has been able to tell us nothing of the nature of these forces. They have no analogy with those that are studied in physics. . . . The regulating forces act as if they watched over the proper working of the living machine, regulating the temperature and the constancy of the composition of the blood and other secretions, limiting the oscillations of the different functions, adapting the organism to the changes of the outer world, etc. . . . Thanks to these directive forces, Nature shuts up each organ in the sphere designed by her, and constantly brings them back to it with the two great springs of all the activity of beings—pleasure and pain.” (“Evolution of Forces,” pp. 367, 8.)

From this analysis we are able to apprehend Na-

ture's method in developing the interior physical centres of thought and vital force. It is a result of the process of cosmic evolution. Individual thought is but, as we might say, the crystallisation of universal, unindividuated thought diffused in ether, which becomes the directive agency of the physical organ through which it is expressed.

Just as a sunbeam which suffuses the atmosphere may be caught in the dew drop, and there reveals its prismatic colors which had not before been suspected, so the diffusive energy of the ether, entering into the brain of a human organism, reveals itself in forms of consciousness not before anticipated. And again, as when the sunbeam penetrates the dew drop certain molecular modifications immediately ensue, so when the diffuse energy of the ether in the form of thought penetrates the tissues of the brain instantly certain cellular modifications follow.

Nor does the analogy of the effect of organised absorption of the primal ether end here. Not only does the molecular modification occur, but we learn that the modification results in certain permanent effects which qualify the material substance. The dew drop is so volatile that these modifications cannot be permanently traced. But when we observe more solidified forms of matter, such as earths and vegetation, we are able to discern the permanent molecular modifications within. We know that the difference between all forms of organic and inorganic matter is the result of the modifications so affected by the impingement of external forces. The

fact that these modifications become permanent causes the variations that exist between all vital and non-vital substances. To the permanence of these interior impressions, these molecular modifications, is to be attributed the difference between the soil and the seed, the vegetable and the animal, the inferior and the human mammal.

The same law prevails in the psychological as in the material world. When certain thoughts penetrate the brain of man or animal, they cause certain modifications in the cell tissues, and these modifications are there permanently registered. These registered modifications are the sources of energy that permeate the being and constitute the fundamental basis of character. They become permanently organised centres of force in the human brain and nervous system, retaining latent psychic energy, which betimes may suddenly explode and most profoundly affect the entire history of the individual. Here abides the realm of the sub-conscious or, as sometimes called, the subliminal self. This subliminal energy is sufficiently organised to constitute a distinguishable personality within the normal personality of each individual. And as we have undertaken in part to show in the previous volume,* it is resident in specific though most recondite physical centres of the body.

The organised centres of thought constitute ideal centres, or centres of ideation. They must be recognised as forces operating in the interior of the human system, and in that sense as actual as the

* "Modern Light on Immortality."

elemental forces of nature that operate throughout the universe. These psychic elements, in the conception of the old psychology, were supposed to be detached and immaterial, whose unity constituted a super-phenomenal entity. The soul was something wholly apart and differentiable from the body. But the new psychology is closely inwoven with the facts of biology, and we recognise no psychic activity which cannot be associated with or located in a material medium. "Science has shown that our inner life is nothing but a combination of psychical elements causally connected and determined by biological conditions," says Muensterberg. And now we are learning that just as the biological elements have combined as an organisation which we recognise as the body, so the psychological elements have also combined into an organisation we recognise as the soul. The two discrete elements are not dissociated, save only in the plane of their respective activity, but they are organically combined. The psychic element finds its counterpart in the biologic element. The psychic element is the latent energy of the biologic element and determines its action and character. "The history of human experience has become a part of biological development. Every effect was completely determined by the foregoing causes, every event resulted from the energy of outer nature and brain cells, every thought, the wisest as well as the most foolish, every deed, the noblest as well as the criminal, is the outcome of causal laws determined by the inherited disposition of the individual organ-

ism and the totality of impressions, reproductions, habits and training, associations and inhibitions, going on in the cells of the cerebrum." (Muensterberg.)

The next fact we must descant upon is that when once these psychic elements are united into an integral organisation, they are not only latent in one individual brain, but they seem to have the power to release their latent energy and impinge upon a brain in another individual.

Not only has the subliminal or subconscious personality been said to have been discovered by the methods of the new psychology, but the extraordinary activities of the psychic elements have forced a revolution in modern scientific thinking. The psychic force, being legitimately allied with all the other forces of nature, is discerned merely, like them, as a mode of vibrations, whose rate is distinguishable from the others, and whose consequent effects are wholly different. On this point let me quote Sir William Crookes:

"All the phenomena of the universe are presumably in some way continuous; and certain facts, plucked, as it were, from the very heart of nature, are likely to be of use in our gradual discovery of facts which lie deeper still.

"Let us then consider the vibrations we trace, not only in solid bodies, but in the air, and in a still more remarkable manner in the ether. These vibrations differ in their velocity and in their frequency. That they exist, extending from one vibration to two thousand millions of millions of vibrations per second, we have good evidence. That they subserve the purpose

of conveying impressions from outside sources of whatever kind to living organisms may be fully recognised. . . . Is it premature to ask in what way are vibrations connected with thought or its transmission? . . . Ordinarily we communicate intelligence to each other by speech. . . . Here we use the vibrations of the material molecule of the atmosphere to transmit intelligence from one brain to another. . . . In the newly discovered Roentgren rays we are introduced to an order of vibrations of extremest minuteness compared with the most minute waves with which we have hitherto been acquainted. . . . It seems to me that these rays may have a possible way of transmitting intelligence which, with a few reasonable postulates, may supply the key to much that is obscure in psychical research. Let it be assumed that these rays, or rays of even higher frequency, can pass into the brain and act on some nervous centre there. Let it be conceived that the brain contains a centre which uses these rays as the vocal chords use sound vibrations, (both being under the command of intelligence), and sends them out, with the velocity of light, to impinge on the receiving ganglion of another brain. In this same way some of the phenomena of telepathy, and the transmission of intelligence from one sensitive to another through long distances, seem to come into the domain of law and can be grasped."

Whether or not this seemingly plausible scientific explanation of so-called occult phenomena be correct (we shall revert to this discussion in later chapters), this much seems to be beyond dispute, namely, that the psychic elements organised within one individual are possessed of the power to transmit themselves to another without the agency of a visible medium. But insomuch as we now learn

that all vibrations, whether material or psychical, must be associated with a material medium, either dense or tenuous, it must follow that when such thoughts or psychic impulses are transmitted they must operate through some intermedial substance, however subtle or invisible. Hence, as we have already stated, the ethereal atmosphere must be permeated with organised psychic elements, distinctive thought-forms, which betimes impinge on other minds and generate within them specific modes of thought and action. It often occurs that such impulses are so powerful they overcome not only single individuals but frequently whole communities. When some stupendous passion seizes an entire nation and hurls it, headlong, into precipitous action; when a miscellaneous collection of wholly unacquainted individuals is instantly seized by a common impulse and momentarily organise into a mob to commit felonious or meritorious deeds; when at the sudden sound of the fife and drum, as in Kipling's "Fore and Aft," a whole army is swept from lethargy into a bloody charge; in these and a multitude of similar experiences we observe the mysterious effect of a psychic force operating through an invisible agency on human intelligence, and deciding the destiny of nations and individuals.

"I have shown," says Le Bon,* "that all mental constitutions contain possibilities of character which may be manifested in consequence of a change of environment. This explains how it was that among the most savage members of the French Conven-

*"The Crowd," pp. 28 and 30.

tion were to be found inoffensive citizens, who under ordinary circumstances, would have been peaceable notaries or virtuous magistrates. The storm past, they resumed their normal character of quiet, law abiding citizens."

In short, the invisible mental energy operating through an invisible material medium seizes upon a collection of minds and instantaneously transforms their characters into their opposite qualities. When a number of people are seized by a common impulse it must be they are affected by the same cause. The cause is purely mental. Its effect takes a specific and definite form. Therefore we are logically compelled to conclude that the cause or mental force itself has been organized into a distinct and definite capacity of expression. As Le Bon intimates there seems to be a "psychological law of the *mental unity* of crowds." Which cannot but mean that the psychological elements which play upon the crowd have been organised into temporary formal union, and reveal their nature in the instantaneous mental unity of the crowd.

Thus it would appear that the united elements of thought, or the invisible organised psychical unity, which sometimes affects a crowd, is as positive and actual an organisation as the physical body of the crowd itself. "The *psychological crowd* is a provisional being of heterogenous elements, which for a moment are combined, *exactly as the cells which constitute a living body form by their reunion a new being* which displays characteristics very different from those possessed by each of the cells singly." (Le Bon).

From the latest scientific discoveries relating to the nature of matter and the method of the universe we are forced to conclude that all substantial forms are transitory and volatile. That not only the palpable forms are transient but that the matter of which they are composed is also dissolvable and ultimately disappears. The invisible ether is the primal matrix of the manifest universe. All states of matter are but condensations or aggregations of ethereal units. These primary units are but temporary vortices of force. A whirl of energy condenses the homogeneous substance and differentiates it into heterogeneous units. All forms of matter are then but transmuting phases of primal ether passing through infinite manifestations, from invisibility to visibility, and again from visibility to invisibility. The old doctrine of the indestructibility of matter seems to have met its Waterloo. Not only is matter now regarded as destructible, but even energy also. Everything is but ether; and ether is but a form of invisible substance into which all matter and energy dissolve, and out of which again they evolve. So far as our senses go, the primordial universe consisted of nothing; thus a sort of sibylline paradox forces us to declare as a law of nature, that, sensibly discerned, the substantial, visible universe is the product of insubstantial Nothingness.

"If everything proceeds from ether and afterwards returns to it, we are forced to enquire," says Le Bon, "first of all how a substance so immaterial can transform itself into heavy and rigid bodies, such as a rock or black metal.

" . . . Bodies are constituted by a collection of atoms, each composed of an aggregate of rotating particles, probably formed by vortices of ether. . . . It is probable that matter owes its rigidity only to the rigidity of the rotary motion of its elements, and that, if this movement stopped, it would instantaneously vanish into ether without leaving a trace behind."*

Thus much for the evanishment of ultimate matter according to the latest scientific discoveries. But the strangest deduction of modern physics is that even energy itself ultimately disappears.

"Whirls of ether, constituting the elements of atoms, can transform themselves into vibrations of ether. These last represent the final stages of the dematerialisation of matter and its transformation into energy before its final disappearance. . . . When the atoms have radiated all their energy . . . by the very fact of these radiations . . . matter and energy have returned to the nothingness of things, like the wave into the ocean."†

'Are we not then forced to conclude that ether is the logical representative in Nature of what has ever been popularly conceived as spirit? And do we not further see that all the modifications of ether into variable forms of energy and matter are positive conditions in nature, and that a *form of thought*, in the last analysis, is as absolute and actual as a form of force or matter? Indeed when we so understand matter and ether, how can we assume that anything

*Le Bon: "Evolution of Forces," p. 79.

†Id. p. 90.

which exists, whether mental or material, is other than some expression of this ultimate substance? If therefore matter is real because it is an organised expression of ether, so must mind and thought also be.

Thought, then, is an embodiment of ether, no less than motion in the form of force or matter. Matter we learn is not ultimate and indestructible, and therefore, neither is thought. But as matter may exist, howbeit in an invisible state, for a long period of time, so also may thought, howbeit invisible, exist in some embodied or organised form for a certain period. The ether, hence, must be inhabited by an infinity of thought-forms, as well as matter-forms. Both forms are ultimately invisible. Yet both forms are ceaselessly active in the destiny of the universe. We are in constant touch with the invisible forms of matter and force. What do we know of the effect on us of those two thousand millions of millions of vibrations in the ether of which Sir William Crookes speaks? And can we question that among the effects which those infinite vibrations have upon us are those of the thought-forms of ether as well as the forms of matter?

And what is a thought-form, reduced to its last analysis, but a spirit, or an organised, intelligent, and specialised mode of ether, invisible yet actual in space?

Not only do we learn then that thought-forms are invisible factors of nature operating in an invisible atmosphere, but as we shall see later on, science seems now to confirm the theory that these

thoughts, when individualised in human brains, operate there also distinctly through a medium which is far more refined and tenuous than the palpable cerebral organ. It would seem that as each atom of inert matter is surrounded by an electric or magnetic atmosphere, constituting a field of force that establishes the mutual coherence between atoms, so every vital cell in the human organism is also surrounded by an atmosphere of radio-active substance that constitutes the field of energy in which the psychic activity is present.

We have but begun to learn anything about this wonderful fact in recent biological experimentation, and, while, as we shall shortly see, science is naturally slow and tentative in its deductions, yet she dares to make certain affirmations about this element of vital and psychic activity which are distinctively revolutionary and startling. It will be our effort to study somewhat closely what science has learned about this, and to discern in what way the discovery may be related to a knowledge of the soul, and its future in the prophetic possibilities of both the race and of the individual. Possibly we shall here learn of a secret and deep laid substance, howbeit of material nature, yet so tenuous, sublimated and invisible as to constitute the fitting residence of a *radiant soul*. Here may, indeed, be the "spiritual body," intuitively proclaimed by faith, and finally discovered by science. Whether that "body" shall be found to possess all the fascinating though confusing qualities that intuition heretofore surmised, will remain for further investigation to

determine. 'At least today science seems more amenable to the solution of such problems than in any age of the past. How these thought-forms affect us, how they are invoven in our organisms constituting, indeed, the origin as well as the elements out of which we are made, and are built into the physical units of our structure; how they co-ordinate independent bodies and manifest extra-physical powers, and thus apparently prophesy the potential persistency of post-mortem existence, will be the burden of study in the following pages.

BOOK I
PSYCHIC PHENOMENA



CHAPTER I

SOME REVOLUTIONARY SCIENTIFIC INTIMATIONS

The mistake through all the centuries, encouraged by metaphysical, religious and occult notions, has been, that a genuine knowledge of the soul, whatever it might be, could be acquired alone through intuition or from some supernatural source. The insistence that the soul is purely spiritual, meaning by that a something wholly extraneous, and unrelated to material substance or organisation, has been the rock on which idealism has always foundered. Unless the interrelation and coexistence of soul and physical organisation can be discerned, unless what we mean by soul is innate in the very essence of matter itself and becomes intelligent and conscious soul merely as the result of the more complex evolution of the material substance never will science in any way be able to take cognisance of soul or regard it as an element of the universe. For that reason through all of the past in scientific lore the subject of the soul has been avoided. Only in our own age as indeed also in some of the ancient Grecian thought has soul been contemplated as a product of natural generation, whose origin might be scientifically determined, and whose destiny logically forestalled.

The birth and growth of the soul is now not surmised by mere philosophical conjecture, whose only

purpose is to bolster some theological creed, but it is now studied, as we might say, under the microscope, from its primordial origin in the universe to its full formed individuation in a human organism.

Science now knows that if there were no vital cell-unit there would be no soul-consciousness. Science sees in cell the origin of soul, and, in the multiplex aggregation of cells, the possibility of the self-consciousness of the individual.

But to speak of cell, in a general way, is not sufficient to satisfy the explanation demanded by the soul activity. By this we refer more especially to all those functions we commonly associate with the exercise of the brain and the nervous system. We think of the soul life as expressed in the feelings, perceptions, thoughts and reflections of the mind. And the mind uses but one set of nerves among the whole thirty different cell systems, through which to exhibit its powers. The cells of the brain and the spinal cord are the only cells assigned to the office of mental activity.

But it must not be forgotten that while the brain and cord are directly concerned in the conscious activities of the mind, yet the vast sea of nerve cells contained in the entire human organism is in some way indirectly associated with it, in the realm of sub-conscious human intelligence. These are all involved in the vast depth "of feeling which we term the sub-conscious mind."

In the beginning of the cell life, in the early stages of differentiation, any cell may act as the brain cell, or the instrument of a psychic impulse.

In the gradual evolution of the cell life a certain series of cells became the particular mediums for the transference of specific lines of force that related wholly to the feelings; then a certain few were segregated for the purpose of higher intelligent function, of determining the length and duration of certain impulses sent through them, and in a general way governing and superintending them. Then other colonies of cells were utilised for purposes of discrimination and judgment, till finally the highest order of cells was employed or trained into the uses of the loftiest exercise of the mental faculties.

The result of this wonderful evolution of cell life and colonisation is, "Instead of a tiny ganglion for the receipt of a simple sensation we have a grand mass of cells capable of receiving and estimating the reception of a hundred inferior ganglia," and determining the value of their myriad impacts in "the grand total of perception and the thousandfold perception of perceptions which we commonly call *thinking*."*

Now the surprising and gratifying event in scientific study is that the entire process may be observed under the microscope. Here we may observe the physical processes of the soul's origin and maintenance. "We see and are able to map out the mode of its growth and discern how its virtues, aspirations, instincts, traits, and beliefs have come into existence and stand linked together in a composite whole. Here is revealed on a chart the physical basis of psychology—the new scientific psychology of the twentieth century."

*Stephens: "Natural Salvation."

Now without going into too much detail, suffice to say that it has been learned that wakefulness, consciousness, etc., depend on the immediate association or contiguity of these cell-neurons, on, in fact, their actually touching each other by their communicating filaments, and that sleep, unconsciousness, etc., are dependent on their non-contiguity brought about by the shrinking of the blood capillaries in the cortical areas of the brain.

It must not be assumed, however, that when science has thus discerned the differentiable uses of the different brain cells, it means to say that merely those cells constitute in their limited organisation the full possibility of human intelligence. This is the common mistake of those who look merely to the mechanical organisation of the cell life and overlook the fact, as I showed in my previous work, that once an organised association of the cell life is instituted, the very organisation itself becomes a force that rises superior to the inferior organisations of the physical units. "It is not here intended," says Stephens, "to advance the doctrine that the human intellect is no higher than the sentience of the brain cells. . . Human intelligence differs not only in quantity but degree from cell intelligence. . . . Biological synthesis would lead us to infer that *by means of organisation*, higher and higher planes of intelligence have been successively attained."

"The human intellect is something more than the associated sentiency of 200,000,000 or more of the cells contained in the brain." This is true, and must not be lost sight of when we contemplate the

full meaning of the soul. There is force, energy, that is creative activity, in organisation itself. The association of the confluent cells institutes an impalpable but invisible agency, resulting from the organisation, yet once instituted, becoming superior to it.

Nevertheless, the simple fact that what is called soul is subject to microscopic observation; that it can be proved to be the result of the aggregation of millions of cells, each of which has its individualised life and soul; that when these cells are partially or permanently segregated the result is immediately registered in the suspense or dissipation of the soul life; and that what is known as personality and self-consciousness is absolutely defined by the degree of the contiguity existing between the cell-units, has led biologists, who read the soul life exclusively in the cell organ, to the apparently logical deduction that when the dissociation between these myriad cells becomes complete and final, that causes the final and absolute collapse of the citadel of the soul, and at once its consciousness, its intelligence, its sensation and its every conceivable activity ceases finally and forever.*

*"It is only by virtue of long-perfected organisation that a 'soul' is raised up to self-consciousness; that the human personality requires and presupposes an organised brain which only the entire evolution of the human race has brought into existence; that intellect and mind result from organised union of the millions of neurons that form the brain and nervous system; that personal identity exists only by virtue of the coalition of these cells, and no longer than they coalesce; that self-consciousness depends on that perfected mechanism of sentient filaments by means of which the neurons pool their self-lives to become sentient; and that when this mechanism or union is impaired or destroyed, per-

If this is the last word of science, of biology; if, indeed, science has itself told us that which absolutely compels such a logical deduction, then that ends the discussion and the investigation, and it is our duty to resign to the voice of nature. The problem we have before us is to discern whether what science has unfolded to us involves only the deduction above given; whether indeed its very information does not open for us a new book of study from which we are at least permitted if not logically forced to make a deduction, which if not wholly contrary to the above, is, nevertheless very different from it.

But before we can reach a final decision on this problem we shall have to enquire as well of energetic as of mechanical science; for we must know not only something about the mechanism of the cell, individually and in organisation, but also of the problem of the energy involved in the cell and in that of its expenditure at the moment of dissolution. This we shall find very necessary before any certitude can be reached. At this point we meet with some surprises.

First we learn that while the phenomenon of life may be shown to have a physical basis, to be, in other words, a mode of motion, a resultant of mechanical action, yet the final word of science is that with the present fund of knowledge life in the last

sonality ceases, being resolved, first to the inferior intelligences of the cells and ultimately to the lowly sentiency of elementary matter—when the cells themselves die and are reduced to their component molecules and atoms." (Stephens' "Natural Salvation," pp. 69 and 70.)

analysis cannot be explained. On the one hand we are assured that every ultimate question in biology is to be found only in physics (Dolbear); that protoplasm is a complex substance, consisting of a complex interior, whirl, or dance, whose action constitutes the phenomenon of life (Foster); that all the forces in life can be reduced to growth, and growth is but attraction and repulsion of like and unlike particles (Haeckel); that a single order of things now embraces life and the physical phenomena,—all phenomena of the universe reduce to an identical mechanism (Dastre); and, on the other hand, we are assured that forces *utterly unknown*, and of the nature of which we have *no suspicion*, oblige the primal cell to become an animal or plant (Le Bon); that physiology cannot answer the question of the ages, What is life; that in the destruction which takes place in the organic reorganisation of a living body nobody knows what actually takes place in the living matter itself (Dastre), etc.

Thus, while it cannot be denied by philosopher or physicist that all the phenomena of the universe operate strictly under the superintendence of one law, and that that law is perhaps justly described as mechanical, yet it is evident, such an interpretation overlooks certain involved principles whose omission interferes with our reaching an accurate conclusion. It must not be surmised that the truth can be reached by assuming that nature anywhere contradicts herself, or that extra-physical phenomena are generated by forces whose activity contradicts the unity of nature; to reach out after such theories

is but to stultify science and make an absurdity of philosophy. Every phenomenon of life must be absolutely explained within the recognised laws and principles of the natural world. If this cannot be done then we must conclude either that we have erred in our observation of the phenomena, or we have not yet sufficiently compassed the hidden laws of the universe.

It would seem that the extraordinary and confusing phenomena, which we are about to contemplate in this work, sometimes called psychic phenomena, may find the source of their explanation, once granted that they actually exist, in the discovery of certain principles which have thus far been too much overlooked.

We are informed by the law of universal energy that all forms of material manifestation are merely the result of the vibratory activity of the universal ether, wholly variable with the length and time of the ethereal waves. What are called forces are, in the last analysis, but variations of these infinite ethereal motions. What is called matter, in the last analysis, is but the condensation of the ethereal waves; and diversities between different forms of matter are but the effects of diverse waves of ether mutually interacting. All nature, in short, consists of matter and motion, and matter itself is at last reduced to a form of motion. Motion in its manifold forms of activity constitutes what is known as the natural forces. This seems to be the decisive analysis of nature which the most modern and acceptable hypotheses of science enunciate. It is evi-

dent from this analysis that while the general law may be accepted without fear or favor, and the deductions made may be accepted as necessarily logical and conclusive, yet there remains one loop-hole through which possibly a serious error might enter into our solution. The error lies simply in the possibility of the computation of the variety of forces. Up to very recent times it was supposed that all the forces in nature were absolutely known, that they could be distinctively enumerated as mechanical, chemical, radiant, thermal, luminous and electrical (with magnetic), as far as they apply to the material world.

Until the most recent times it was almost dogmatically assumed, especially after Helmholtz and Mayer announced the law of the conservation of energy, that the phases of force thus enumerated completed the list and that it was forever and finally closed. But Dastre, the eminent French chemist and lecturer at the Sorbonne, exclaims (although himself strictly a physicist and seeking in no way to demand of nature, for the sake of hypothesis, more than she can manifestly supply): "Can we then say that the lists are closed and that science will never discover other forms and specific varieties of energy? Not at all. Such an affirmation would be at once as ambitious as impertinent. The history of the physical sciences ought to render us more circumspect. It teaches us that little more than a century has passed since electric energy has made its entrance on the scene, and we have commenced to know this form of energy. Such a discovery as

this right under our eyes of an agent playing such an important part in nature should leave the door open in future for other surprises.*

Here, then, we see, is the loop-hole. Here is the concealed ambush out of which a hidden enemy may surprise the dogmatic scientist.

And perhaps the surprise lies in this: that there may be involved in the very activity of the living matter through which human consciousness reveals itself a certain force whose liberation may compel us to learn that by the operation of this force a whole category of phenomena is possible whose manifestation may apparently neutralise the logical presence of the heretofore known forces of nature and seem to reduce her to a contradiction.

Already we have a hint of this force,—a new and, until within our own time, altogether unknown phase of energy, discovered by an eminent Frenchman, about which we shall hear more in detail in the coming pages of this book; and we learn still in addition that the new force which has brought about the possibility of so many physical wonders in the laboratory, also exists in the human system, released by the interior molecular action of the vital substance.

In other words, we shall see that the cell of life is not only a most complex organisation, but that out of the very mysterious activities which ever operate within its potent substance a new and surprising force is liberated, whose possibilities are yet

“Theory of Energy and the Living World,” *Smithsonian Rep.*, 1898.

uncalculated, but which may account for the manifestation under natural law for all the so-called psychological phenomena.

After we have studied the action of this force through its manifold and confusing manifestations, we shall be asked to study the mysterious substance within which it operates, a substance, material, yet finer than any heretofore known substance, and to learn, if we can, whether through the action of this marvellous force upon this mysterious substance an actually invisible but substantial organisation has been created within the human physical body, that may live partially independent of it, and possibly be at last bodily and permanently detached from it.

CHAPTER II

A STARTLING SCIENTIFIC DISCOVERY

Science in these later days is beginning to talk less of "atoms" than of "corpuscles." But a few years ago the atom reigned supreme as the absolutely final unit of cosmic matter. It was supposed to be hypothetically not only the smallest actual but the smallest conceivable material unit.

We now know, however, that the tendency of all physical research is to reduce the final unit of matter to lower dimensional factors. Nearer and nearer the material substance is approaching that stage that must be considered as substantially spiritual, or a form of energy in pure ether. At present the lowest dimensional unit of matter is called a corpuscle, and how small this is we may appreciate when we learn that it consists of the one thousandth part of the smallest atom of matter known, namely the atom of hydrogen. This corpuscle is not matter at all in the usual sense; it is rather a centre of force, a charge of negative electricity; and the association of these corpuscles makes up an atom because of their rotary movement around an axis at a tremendous rate of velocity. It is estimated to be 20,000 miles a second. Some estimates are very much greater, ranging from 60,000 to 180,000 miles per second. What an enormous amount of energy the inconceivably rapid rotation of the corpuscles must emit we will not at present

dwell on, although it will be necessary to come back to it in a later chapter, as this secret energy may be much involved in the phenomena we are to consider.

But at present I am simply calling attention to the infinitesimal dimension of the corpuscle, so low that it is impossible under ordinary conditions to detect it under the microscope, yet may be rendered radiant and visible through laboratory instruments.

Now in the same manner as all matter is reduced to the ultimate corpuscle, which is a nearer approach to the ultimate ether than the antecedent atom, so the living substance of matter, protoplasm, is now reduced from the visible substance detected under the microscope to an invisible ultra-microscopical element. There seem to be ultimate units of living matter, whose mutual relation and interaction release the energy that is known as vital. These ultimate units are wholly invisible yet are centers of energy that constitute the activity of life or living matter. Haeckel ("Wonders of Life") warns us that we must not "confuse the invisible, *hypothetical molecular* structure with the real microscopically discoverable structure of the plasm." The *hypothetical molecules* are the material units of life, yet they are so small, of such low dimension, so transparent, that they are beyond the reach of the microscope.

A curious characteristic of this peculiar substance which seems to constitute the basis of life is its display of unusual energy. According to the

mechanical interpretation it is always possible to determine the amount of energy a body contains by the amount that is absorbed from without; or produced by mechanical action within the body. Thus by the computation of the amount of heat emitted by a body one can compute the actual amount of the work it does. Scientifically it can be shown that a given amount of mechanical motion produces a definite amount of heat. This is a fundamental law of physics. But it has also been shown that the same law applies to living bodies, and that the energy expended by a vital organism is limited to the amount of mechanical motion set in operation by a given amount of aliment. So certain are the mechanical vitalists on this point that the law is definitely stated with much preciseness. Vital energy is derived from chemical energy, chemical energy from mechanical motion. The amount of the chemical energy is limited to the food supply, and measured by the heat emitted.

But we are perplexed to find that vital activities are often in great disproportion to the amount of the food supply, and that especially the energy of the psychic activities is often beyond such mechanical computation. We shall call more emphatic attention to this fact later on, and undertake to draw from it certain germane deductions; but at present we might note the fact, that if the vital and psychic energies were absolutely limited to the mechanical effect of food supplies it would be difficult to account for the long fastings of certain individuals, from forty to a hundred days; for the

extremely limited supply of food through long durations of time to crews exposed to disasters of the elements; for the manifestation of extraordinary intelligence and perspicuity in invalids suffering from emaciation in consequence of the non-assimilation of food; for the amazing mental exaltation witnessed in the case of heroes and martyrs while tortured with pain and consumed with flames. In fact an almost endless catalogue of human experiences might be written to show how what is called psychic energy or will force is wholly disproportionate to the customary food supply of mortals. Even indeed is this true of the inferior animals, as I shall afterwards point out.

There seems to be something in the cell-centres of the living body that constitutes an instrument of volition, or will-energy, which is unique and independent. The cell itself is apparently self generative of volitional energy, which fact seems to be utterly dumbfounding to old time theorists.

Back of the cell force is the atom force. Back of or within the atom seems to be the existence of a force wholly out of relation to the mechanical action that comes from external agitation. The atom we now learn contains a force within itself that is the most powerful of all known forces, and the liberation of this atomic energy within the cell organism hints to us something of the amazing energy of the cell itself.

The actual food that supplies the cell is not yet found, as biologists admit. Calkins so decides in

his latest experiments* and Stephens† surmises that the cell may depend wholly on the ether for its primal alimentary supply.

Not to anticipate what we are to say more in detail hereafter we wish here merely to insinuate that the narrow application of the laws of physics, as heretofore understood, to the vitalistic actions of living bodies and the manifestation of psychic force may be found to be wholly inadequate.

A great law has recently been discovered that apparently sets all old time science topsy turvy, and whose interpretation and application to so-called psychic phenomena I am inclined to think will permit some surprising explanations. It may be that when this law is fully understood and its complete application to psychic phenomena apprehended it will be easy to classify such phenomena under recognised natural laws, without the least violence to science or philosophy. That is what we shall undertake to study in later chapters.

There is, however, another characteristic of living matter to which we must now call attention, and whose apprehension may lead us a step further in analysing these puzzling psychological phenomena, and possibly bring them into logical classification with the phenomena of the physical world. The wonderful substance that forms the physical basis of life, protoplasm, not only constitutes the stage on which are enacted the multitudinous scenes of each human history, but is of such complex and

*See "Journal of Experimental Zoology," 1, 3. Art. "Studies of the Life History of Protozoa."

†"Natural Salvation," p. 175.

unique nature that it permanently retains the registry of every thought and act experienced. It is made of hypothetical particles so inconceivably small that their number is wholly beyond human apprehension. Yet they are perfectly aggregated into a complete and limited organism, which howbeit invisible, constitutes an exact replica, or, let us say, spectral duplicate, of the visible exterior physical organism. This fact we undertook to set forth explicitly in the previous volume and shall not here again argue or discuss it.

However in addition to the extreme rarity of these living particles, or their refined and sublimate quality, which necessitates their invisibility, they are possessed of a characteristic which affords room for large and suggestive possibilities. If we could imagine the outer, denser, opaque elements of our physical body completely dissipated, leaving yet a body, though spectral or invisible, still in every minute detail the exact counterpart of the exterior but now dissolved body, we would possess in the mind a vivid picture of the protoplasmic organism that actually exists within each human being.

If again, we could conceive of this protoplasmic organism, though invisible, suddenly made luminous, so that while radiant it would reveal its perfect outline in spectral form, we would still more accurately fashion to our minds the inner mysterious body which exists within our palpable, exterior body.

Before we dilate upon the possibilities of such an organisation, and the logical deduction that

might be drawn therefrom, let us investigate the ground of the intimation we have above ventured upon.

It may be that we shall have found here the actual arrangement of spectral particles that form what might be called the soul-body, in the sense of being the physical, though invisible, residence of the activities of the mind. Perhaps without illogical interpretation this may be called the "spiritual body," and constitute an individual entity within the physical organism as actual as itself. It may be also that by reason of this "soul-body" we shall be able to discern the possibilities of the psychophysical phenomena that have so much confused the world. And perhaps we shall see how this radiant soul body or spectral spiritual form may indicate its inherent powers, that suggest its potential persistence after the permanent dissolution of the manifest physical body.

To the point, then—Science has recently demonstrated that all matter is actually luminous, howbeit the luminosity is not visible to the normal human eye.

Each particular atom sends out its distinctive lines of radiance, and, just as the stars differ one from the other, so atoms differ from one another in the diversity of their spectral vapors.

Says Dr. Franz Himstedt:—"Every chemical element gives out like a glowing vapor, a spectrum, in which the colors are not continuous, and merge

*Prorector of the University of Freiburg, in Breisgau, Baden. See Annual Report, Smithsonian Inst., 1906.

into one another as in a rainbow, but which in the spectral apparatus are shown as a smaller or a larger number of luminous lines characteristic of the element in question, and separated by dark spaces between. These lines have been divided into series which show us that the light emitted by an atom consists of a number of separate vibrations."

We see, then, that primal matter is inherently luminous or radio-active. Notwithstanding this fact the luminosity is ordinarily invisible to the naked eye, and cannot be at all detected except the substance be subjected to certain conditions. Therefore it need not surprise us to learn that such luminous but invisible atoms exist in vital organisms. The invisible vapor which emanates from a chemical element or atom, however, is sufficiently active to excite visible luminosity in other substances.*

This luminous or radio-active quality is a spontaneous, not an acquired quality in all conditions of matter, whether primary or evolved.†

It is of course natural to assume that if the primal matter from which the entire universe has been evolved is intrinsically radio-active, that is, inher-

*"The energy of the rays of radium is manifest by their capacity for exciting the luminosity of various phosphorescent substances. Radium salts are, indeed, themselves luminous, and the light is readily visible in certain conditions." (Madame Curie).

†"Experiments have already been made in this direction, and numerous physicists believe that their researches lead to the conclusion that all bodies are radio-active. They believe it can be proved that zinc, lead, etc., send out rays by which the air is made conductive. . . . Elster and Geitel have now found proof that the radio-active emanation is everywhere present in the atmosphere." (Himstedt).

ently radiant, or light generating—then all forms and organisations of matter, both living or non-living, are also radio-active. And we find that this is precisely the condition which scientists have discovered to exist. By recent experiments it has been shown that even coarse forms of matter, such as wood and metal, give forth these radiant emanations to such an extent that photographs have been produced by their use.

If we find that radio-activity is a spontaneous and constant property of matter* in all its forms it would naturally not surprise us to learn that the matter of which the highly complex organisations of living bodies is composed is also luminous and radio-active. In the last analysis, as we undertook to explain in the previous work† there is no difference between living and dead matter; that, in fact, all matter is alive, save only in different degrees. So all matter is luminous, and radio-active, save only in the degree of such activity. "Matter is incessantly trans-

*"The light of an arc-lamp is a property of condition; suppose you found deep in the earth some natural substance blazing forever with a light as great; that would be a natural, intrinsic property—and a very curious one—radio-activity.

"So with the positive ions, the corpuscles, and the X rays. They arise from candle flames, red-hot metals, or electrified vacuum tubes, all of them substances or mechanisms under very special conditions. The Becquerel rays from radium, on the contrary, arise from a substance dug out of the ground, which will emit them, apparently, for centuries in the future as it has emitted them apparently through the countless centuries of the past, without any extrinsic influence. It is their natural, intrinsic property—a new property—radio-activity." Duncan, "The New Knowledge," p. 111.

†"Modern Light on Immortality," pp. 338 and 352 ff.

formed into light at all temperatures. An eye with a retina sensitive enough would see in the dark all objects as if surrounded by a luminous halo, and darkness would be unknown to it. Such an eye perhaps does not exist, but different instruments allow us to make a substitute for it.”‡

Protoplasm, or the foundation of all living organisms, howbeit a highly complex form of matter, is inherently radio-active, as evidenced by its phosphorescent property. M. de Manaceine, in endeavoring to explain the psychology of dreams and apparitions, indicates the effect which the luminous property of protoplasm has on the sub-consciousness. He says:*

“The visual aspect of dreams, or how we see light, color and form, is thus, to my mind, made quite clear when we come to study the lights existing or developed in the organism. From the nature and composition of the body it is physically certain that they must be present. Phosphorus emits light; so do calcic sulphide, boric sulphide, chalk, silk, teeth, and other substances. The emission of light is one of the properties of protoplasm. Phosphorus enters largely into the composition of the human body, being present as phosphates in the bones and other tissues. It exists in muscle as a combination of phosphoric acid. It exists as a phosphoretted fat in the lecithin of the blood corpuscles and the nerve and brain tissue. As oxygen is being constantly conveyed to these phosphoretted tissues, light will certainly be generated. . . . Therefore from the chemical reactions involved, and from physiological and pathological facts, we

‡“The Evolution of Forces,” Le Bon, p. 194.

*“Sleep, Its Physiology,” etc., p. 236.

have good reason to believe that there is actual light produced within the body."

While we are forbidden from seeing this interior phosphorescent light within the human body, although at some time it is quite conceivable instruments may be invented that will make this possible, we may indeed witness a visible manifestation that emanates from lowly organised forms of protoplasm in the inferior animals and insects. In these low forms of life the primitive life-substance is so much more exposed upon the surface of the organisms that their inherent properties are more apparent. For instance, we are told that "Many of the fungi are self-luminous, probably from phosphorus contained in their tissues." One example cited by Cooke was reported to a traveller in Australia. A large specimen of an *Agario*, sixteen inches in diameter, was hung up in a sitting room, where it gave light for four or five nights till it dried up. . . . Many of the fungi contained a milky juice, and when the flesh is cut or bruised, and the juice exposed to the air, its color turns to a dull, livid green.*

Doubtless few voyagers of the sea have ever realised that they are witnessing the strange phenomenon of the emission of the intrinsic luminosity of pure protoplasm when they have seen that always exciting and fascinating display of phosphorescent splendor on the rolling waves. But it seems that this is true.

*Alexander: "The Dynamic Theory," p. 204.

"The most striking exhibition of phosphorescence in living things is found in the ocean, especially in the warmer climates. It is said that the light emitted by these insects is so brilliant that two or three of them will light a medium sized room. . . . When the water is agitated as by the passage of a vessel, its whole pathway is illumined by millions of little incandescent lamps, carried by as many millions of living animalculæ. . . . Men have been able to read large print by the light of the agitated sea water, and to tell the time of night by a watch. In all probability these living animal forms that are able to emit light have the power to exude a substance similar to phosphorus, which emits light by a slow oxidation when it comes in contact with air and water." (Gray's "Nature Miracles," Vol. 2, pp. 207, 208.)*

Referring to this phosphorescence of living bodies Le Bon† intimates that the explanation is to be

*Even more wonderful illustrations of the existence of phosphorescent animals have been given by travelers. "The common earthworm, according to Mr. Holder, is sometimes luminous. He says. 'One of the most brilliant displays of animal phosphorescence I ever observed came from such a source. . . . In passing through an orange grove one rainy night in Southern California, I kicked aside a large clump of earth, when, to all intents and purposes, a mass of molten metal went flying in all directions, affording an unusual display. The cause of the light was a single earth worm, possibly two, not over two, inches in length. The luminous matter was exuding from them, and was permeating the surrounding soil, rendering it phosphorescent. The light emitting mucus came upon my hands, and the light lasted several seconds, gradually fading away.'" "Literary Digest," Sept. 29, 1900.

†"Evolution of Forces," p. 268.

found in chemical reactions upon the phosphorus in the cell, and in his "Evolution of Matter,"‡ he shows that the chemical reaction results in the dissociation of matter; that is, in the resolution of matter into a state approaching ether, when it becomes radio-active and phosphorescent. Haeckel as we have seen, conceives of the ultra-microscopical molecule of living matter as a centre of chemical energy; and Le Bon intimates that the energy is liberated by the dissociation of the atoms of the substance of which the protoplasm consists. When matter approaches this stage in evolution it becomes radio-active by giving off infinitesimal particles of inconceivably small dimensions, which are flying into space at a rate of speed from 20,000 to 180,000 miles per second. It is this cannonading, presumably, of the substance of the cell by these myriad spectral entities that causes them to glow with phosphorescent light, illuminating as we have intimated, the interior of a living organism.

Merely following the discoveries of Becquerel, Curie, Thompson, Rutherford and Le Bon we seem to be sufficiently fortified in our conclusion that the electrical activity about the cell of life consists of an uninterrupted flow of radio-active corpuscles; these corpuscles are the product of the degradation or disruption of the ultimate atoms of which the living matter consists; and are therefore of such refined and sublimate consistency as to justify their description as immaterial and ethereal.

Perhaps the statement affords us a clearer concep-

tion of the appearance and nature of what I have chosen to call the biological body as distinguished from the cellular or protoplasmic organism. It consists not only of the substance of the microscopically detected cells, but in addition and more immediately of the electric or radio-active particles, countless millions in number, and forever flowing in a stream of inconceivable activity around the surface of the systems of the brain and nervous cells, presenting a spectral shape of livid-green and phosphorescent hue.

These particles are actual, though invisible, centres of energy that must be calculated with, howbeit they are not amenable to the microscope or to weights and measures. These particles, of however low dimensional scale, are, nevertheless, actual forms of matter. It therefore seems to me to be a logical deduction, from additional data hereafter to be presented, that these ultra-microscopical but material units have been trained in the course of the life of a human being to build up, by their association, an invisible though actual residence of the psychic forces, or the soul, insomuch as they consist of a substance of such peculiar quality as to be instantaneously susceptible to the impressions of the psychic activities.

Just as the molecular cells of the outer physical body have been organised into a common unity which constitutes the palpable structure of the living organism, so within the physical organisation the still more minute, ulterior units of the living substance, namely the radio-active particles, have

organised a corpuscular body by means of the spiritual forces.

This biologic, or psychic, or, if you please, "spiritual" body, must be carefully distinguished from the protoplasmic or cellular body, both as to the nature of its substance and the office it performs. The protoplasmic body consists of the substance of the cells, while the corpuscular or psychic body consists of the radio-active particles that flow from the degradation and disruption of the ultimate atoms of the cell substance. Consisting thus of distinguishable matter they are equally distinguished in the offices they perform.

The purpose of this work is to study in what manner this corpuscular or psychic body is related to ultra-normal psychological phenomena, and whether the organisation of the particles of the corpuscular body is of such tenacious character as to warrant the prophecy that they may cohere and act independently and separately from the cellular body, and maintain an organised unity after the physical body shall have dissolved in death.

CHAPTER III

THE SEAT OF THE SUB-CONSCIOUS MIND

It is now an admitted physiological fact that the flitting thoughts, imaginations, memories, which constitute the burden of our daily lives, are not mere untenable impulses vanishing into ethereal nothingness. A psychic state always has its complementary physical state. Every thought and mental impulse is instantly incarnated in due and appropriate form. It seems at first incredible that the myriad, minute and ever flitting mental activities of which we are conscious, as well as the still far more numerous unconscious states of which we are the subjects, should secure for themselves a permanent residence in the fabric of the flesh. But we find that this is even physically possible by reason of the inconceivable tenuity of the substance of which the nervous system consists, and the incalculable number of cells which constitute the registry of the conscious and unconscious states of mind.

Indeed the very process which Nature employs in the development of the activities of life exposes her secret method of registering the mental phenomena in the minute cells of the body. In order that this may be clearly apprehended it would be well to review the nature and mechanism of the cell bodies out of which the entire organism is produced. The cell itself is by no means a simple

organism. It is so extremely complex that it can be regarded as nothing but a perfect machine, with numerous parts functionally correlated.

The cell body seems to be constructed for the special business of destroying structures through chemical changes, and liberating the energy which is confined within the cell-compounds, which is speedily transmuted into motion, heat, or some other form of active energy. But the chemical compounds must first be incorporated in the cell before the chemical destruction can take place. It is the office of one especial organ of the cell, called the *nucleus*, to assimilate the cell food, that is, to convert the food into its own substance. But within the nucleus there is an almost miraculous substance, called chromatin, which controls the destiny of the nucleus, constitutes the physical basis of heredity, and is handed down from one generation to another by continuous descent. Yet the cell division seems to be especially effected by another organ called the centrosome, which performs the peculiar office of seeing that the chromatin material is equally divided among the subsequent cell-descendants, and of causing the daughter cells to be the equivalent of the mother cell and each other. The organic cell, thus analysed, is apparently a perfectly devised machine, with admirably adapted parts, for the generation of life.*

These cell factors, however, all seem to have been bits of machinery developed from a still more

*See Conn: "Living Machine"; and Wilson: "The Cell."

primitive substance, which is characterised by even more tenuous and irritable properties. For all parts of the cell (the cell wall, the nucleus, the chromatin and the centrosome), lie within a sea of fluid-substance, a sort of soapy foam, or viscous slime "neither solid or fluid."*

From this we see how delicate is the structure and how thin, irritable, and susceptible to the play of subtle forces is the fluid substance within which the cell structure abides, and, as presumed by some, from which it has been evolved.† As might be imagined it is so peculiarly formed that it is easily affected by the waves of mental energy which sweep through the nervous system. That we may better realise how such a structure lends itself easily to the play of the subtle forces of the mental and soul activities of men, let us study for a moment the most marvelous of all the factors of the cell—the centrosome.

Conn has written a vivid description of it in his

*"The structure of protoplasm is not yet thoroughly understood by scientists, but a few general facts are known beyond question. It is thought, in the first place, that it consists of two entirely different substances. There is a somewhat solid material permeating it, usually regarded as having a reticulate structure. It is variously described, sometimes as a reticulate network, sometimes as a mass of threads or fibres, and sometimes as a mass of foam. It is extremely delicate and only visible under certain conditions and with the best microscopes. . . . Within the meshes of this reticulum there is found a liquid, perfectly clear and transparent, to whose presence the liquid character of the protoplasm is due. In this liquid no structure can be determined, and, so far as we know, it is homogeneous."

†See Haeckel: "Wonders of Life," Chapter on "Plasm"; also, "Evolution of Man."

“Living Machine,” which I here reproduce: “Within the last few years there has been found to be present in most cells an organ which has been called the centrosome. It is found in the cell substance just outside the nucleus, and commonly appears as an extremely minute round dot, so minute that no internal structure has been discerned. It may be no larger than the minute granules or microsomes in the cell, and until recently it entirely escaped the notice of microscopists. It has, however, been clearly demonstrated as an active part of the cell and entirely distinct from the ordinary microsomes. . . . In the activities which characterise cell life this centrosome leads the way. From it radiate the forces that control cell life and hence the centrosome is sometimes called the *dynamic centre of the cell*.”

We find that because of the dynamic activity of this centrosome a breaking up of the parts of the cell occurs, when certain surprising results follow. In certain of the cells two centrosomes appear opposite each other between which certain radiating fibres or lines of energy play. “Each of the two centrosomes appears to send out from itself delicate radiating fibres into the surrounding cell substance. . . . The centrosome becomes surrounded by a mass of radiating fibres which give it a star-like appearance, or more commonly the appearance of a double star, since there are two centrosomes near together. . . . Between the two stars or asters a set of fibres can be seen running from one to the other. These two asters and the centrosomes

within them have been spoken of as the dynamic centre of the cell, since they appear to control the forces which lead to cell division."

Now the action between these asters seems to be electric, and undoubtedly the force that is at play between them is electro-magnetic. What is actually occurring in this curious division of the cell is the formation of a most delicate structure that becomes the physical seat of the hereditary forces that play in the life of all living organisms.

Because of the decomposing energy which sways back and forth between the star-like bodies that surround the centrosomes, the chromatin—which is the most remarkable of all the divisions of the cell and is the source of the reproductive property of cell-life—splits up into fibres which are called chromosones. "The chromosone contains all the hereditary traits which the cells hand down from one generation to another, and indeed the chromosones of the egg contain all the traits which the parents hand down to the child." (Conn.)

Having thus a vivid picture of the cell formation and activities presented to us it will not be so difficult to grasp the contention of the physiologists that all mental action, all the energies aroused in the emotional and psychic centres of human beings are registered permanently within the physical substance of the brain and nervous system.

The marvellous structure of the cell organism and its startling physiological functions reveal to us not only the physical basis of the hereditary force which transmits traits of character to de-

scendants, but, what is for the purpose of this discussion more important, the physical basis of the sub-realm of the psychic activities. If it were not possible to discover the seat of the mental activities, which in themselves are so evanescent that their swift passing would leave no hope for their recall, living organisms would not be endowed with memory, and the capacity of consciousness would not have been developed. These minute protoplasmic granules and reticulate fibres are the accommodating agencies for the perpetuation of consciousness and the immediate instruments of memory. Because they are so infinite in number and because they are being so constantly broken up into their several parts, which throughout the entire organism aggregate into countless millions, it is possible that the myriad experiences which affect our minds and consciousness may find therein sufficient material on which to impress their presence.

Again these delicate structures are so marvelously organised that they not only receive the impressions of the passing experiences of man, but they retain them perfectly and for all time during the continuity of life.

Here, then, is the physical seat of that but recently discovered and scarcely yet explored region of the soul known as the sub-conscious realm.

In my judgment it is the study of this mysterious region that will throw much light upon the psychic possibilities of humankind and afford a possible explanation of many marvellous and ex-

traordinary experiences. It is because nothing that we have ever known, thought, felt, imagined, touched or tasted can ever be radically removed from the physical seat within the organism where it has been registered that we can so often account for dreams, phantasies and apparitions, which might otherwise wholly confound us. Much that comes to us seemingly from another world is often but the uprising, within the conscious realm, of past experiences long forgotten, yes, even of experiences which were not our own but have been transmitted to us from immemorial centuries. "In the hereditary transmission of the characters of the physical and psychic organism,—the continuity of the germ plasm, as Weisman calls it, or the idioplasm, as Naegeli terms it—nothing is lost. The forms which thought takes are organic, and transmitted by heredity. Even characteristic gestures, special and peculiar traits, the characteristics of handwriting, of thought itself, are transmitted from one generation to another. They are certainly transmitted unconsciously. (Manaceine, "Sleep," etc., p. 326.)

And this is true because the infinite experiences of our mind are written over and over again upon the minute cells and cell particles of the physical body; especially the cells of the brain and the nervous system.

CHAPTER IV.

THE SOUL'S SECRET SCROLL

Whenever a state of consciousness arises out of a forgotten past, it is as if that which had been erased from the cells had been suddenly restored.

This physical condition may be illustrated by what is known as a palimpsest. Many ages ago, when paper was a rarity or unknown, and manuscripts were inscribed upon parchments and carefully confined by the custodians of libraries, it was found necessary to use the same parchment over and over for successive impressions in subsequent periods. It was customary, therefore, to erase the original writings on these parchments and, then, to write, once more, fresh matter upon the cleansed surface. Such parchments often lay buried for ages in the crypts of ancient libraries. When finally they were discovered they revealed to the curious and penetrating eyes of patient scholars certain faint and ghostlike figures beneath the clearer characters upon the surface. Their suspicion that these were the faded writings of antecedent ages was soon justified, and in the course of time it was discovered that by washing the parchments with certain chemical solutions, the writing which appeared so vague and ghostlike was resurrected. Thus were the original manuscripts restored to later ages.

In much the same manner the minute cells of

the brain and nervous system of the human organism are affected by an infinite series of inerasable impressions. While the area within which the cell receives the mental impressions is so infinitesimal that it is beyond the power of the mind to realise it, yet its susceptibility to receive psychic impressions being without limitation, they would seem to us to be written one upon the other within the cell in countless profusion. Each series of mental activities seems to be buried beneath the other, and finally sunk deep within the oblivion of our unconscious selves.

That we may realise what a vast mass of material there is within the cranial and nervous systems within which the millions of mental and psychic experiences of the unconscious and conscious activities of the human organism may be registered, it is well to look to figures. For, impossible as it may seem to be to us who are untrained to the task, the actual number of cells within the neuro-cerebral system has been approximately discovered.

"Meynert computed that there were twelve hundred millions (1,200,000,000), of ganglion cells in the cortex of the hemisphere, and that there were some ten millions of large cells in the cortex of the cerebellum. Adding to them the cells in the basal ganglia, the small cells everywhere, together with all those in the spinal cord, three thousand millions (3,000,000,000) would be a moderate estimate of the total number of the central system."*

*"The Growth of the Brain," Donaldson, p. 159.

It would seem, then, that our bodies are especially built for the reception of the countless mental impressions which come to us in life. And that when once those impressions are carved upon the myriad cell forms of the body there is room enough within the cells for them to remain there as long as the cell survives. And this seems to be the simple physiological fact. The very cell seems to be so made that its organism is the exact instrumentality required for the registration of the activities of the conscious and the unconscious experiences of an individual.

Haeckel* seems to have made it very clear that the cell is divided into two chief sections adaptable to the different purpose of sentient and psychic life. The inner nucleus ("caryoplasm"), especially that division of it which we have already studied as the chromatin and the chromosone, is the immediate instrument for the hereditary descent of ancestral and parental traits. But the outer cell-body ("cytoplasm") is devoted to the office of adaptation and nutrition. That is, just as the outer portion of our bodies comes in contact with the objective, external world, and receives from that all its sensations and experiences, so the outer cell-body is employed in carrying on the objective work of adjusting itself correctly to the other cell-bodies and receiving the food for the nutritive requirements of the cell organism. But the inner cell-body is reserved for the reception and maintenance of the inner or psychic impres-

*"Wonders of Life," p. 138.

sions and processes of the organism. We have just referred to the inconceivably large number of those cells. When we remember that these are split up into continuously renewing sections, and yet that the inner portion of them, the plasm, itself consists in each molecule of over 1000 atoms (Haeckel), we find that we have all the physical requirements of an instrument for the reception and permanent retainment of all possible psychic and mental experiences of living bodies.

Here then, it would seem, is the physical residence of the sub-conscious or age-buried self. This is the physico-psychic centre which registers all our sensations, thoughts, feelings and fancies, as well of our own antecedent selves as of the selves of all our vanished ancestry. Apparently, within this ultra-microscopic substance lies buried the so-called unconscious soul or subconscious mind.*

*"The chromatin of the neucleus contains the determinants of hereditary qualities. . . . In reproduction, . . . as of course only the germ-cells of an adult organism pass on to form later generations, and as their content of chromatin is derived not from the sister organs of the body, but from the original fertilised egg, there is a direct stream of the germ-plasm which flows continuously from germ-cell to germ-cell through succeeding generations. This stream, be it noted, does not flow circuitously from egg to adult and then to new germ-cells, but is *direct and continuous*, and apparently it cannot pick up any of the body changes of an acquired nature; indeed, it is doubtful whether such changes can reach the germ-plasm at all, for the path is not traversed in that retrograde direction." ("Zoology," by Prof. H. W. Crampton, pp. 22 and 23.)

This especial element (chromatin) of the germ plasm seems, then, to be the seat of the mental activities that do not respond to physical stimuli. It would appear to be the interior receptacle of the buried residua of the conscious activities.

But it is not forever buried, nor can it be thus obliterated. Oft, it rises to the surface to startle and amaze us.

At times when we are aroused by some disturbing situation, which awakens us from the sleep of the past, and, the conditions being favorable, those faded and forgotten palimpsests are suddenly restored, then the vague "scars" of ancient impressions grow into palpable and vivid figures and we read again, as in a book, visions which had long since flitted from our memories.

"Such reminiscences . . . occur in accordance with the psychological law, by which we sometimes hear, afterward, the sounds of human speech, which had ceased; the melody which no longer vibrates; the clock which struck some seconds since; they had passed unperceived, though not unregistered, because consciousness was then otherwise occupied. The neuro-cerebral system retains the traces of the impressions which strike it, and in the absence of other exterior impressions, these may revive under the sole influences of that voluntary impression which is, as it were, given to consciousness. In such cases consciousness may be compared to a master who returns to his property after temporary absence; he carefully examines all the changes, the additions, the transpositions, which have occurred during his absence, and notes what he finds."*

We might say that the whole biological body, i. e., the cellular substance of the cerebral system, constitutes what might be called the cylinder (comparing it with a phonograph), which receives the constant impressions of the mind upon it. When,

*Manaceine, "Sleep," etc.

for any reason, purposeful or accidental, the cylinder (representing the cellular impressions once received) is again presented to the mind, it becomes conscious of the identical experiences it recognised when it first caused the cells to become impressed. The cylinder is restored to the mind and the mind again hears its sounds and sees its pictures.

Having then found the physiological residence of the sub-conscious self, as well as its physiological office, let us proceed to a more careful and detailed study of this marvellous and mysterious centre of a human being.

So new is the conception of the permanent, under, or sub-conscious self, called by Myers the subliminal, that a number of reputable psychological authorities still dispute its existence. By them it is consigned to the limbo of meaningless speculation and vague supposition. Such a distinguished authority as Dr. G. T. Ladd, of Yale University, for instance, declares that "to speak of unconscious psychical or mental states as belonging to mind is to use words that are quite unintelligible. The attempt to form a metaphysical conception of mind which does not include consciousness as the one characteristic that distinguishes mind from not mind, must always remain a vain attempt."*†

*"Philosophy of Mind," p. 395.

†"The hypothesis of subliminal consciousness, an unconscious consciousness, seems to me a contradiction of terms," says Dr. Charles A. Mercier, in his monumental work on "Psychology, Normal and Morbid," (p. 396).

However, after making this positive assertion, he seems

However, of late years psychologists have come to the positive conclusion that there exists an area of psychic activities which is removed from the plane of normal consciousness, and which is as distinctly a process of the human mind as is the realm

to proceed to prove that the physical system is so constituted as to be susceptible of just such an unconscious consciousness. He proceeds as follows: "That a state of mind should be so faint that it may pass unattended to, is an experience with which we are all familiar; but a state of mind of which no effort of attention can give any inkling, seems to me a verbal expression without any meaning. On the other hand, I can very well understand and believe that a nervous process which would ordinarily be attended by consciousness, or which belongs to a class that is ordinarily so attended, may be destitute of conscious accompaniment, under certain circumstances. I can conceive it to be so destitute if it occurs very slowly, for a suddenness as well as an amount of change is an important ingredient in consciousness; I can conceive it to be so destitute if the area of the tissue in which the change takes place is isolated from the other active areas by a zone of inactive tissue; and there are other conceivable circumstances which render the hypothesis of unconscious 'cerebration' tenable, without an assumption so meaningless to most people as subliminal consciousness."

In this statement Dr. Mercier seems to analyse the very conditions which permit of a so-called unconscious consciousness, as even Haeckel himself points out in "The Wonders of Life." Says the latter:

"Consciousness develops originally out of *unconscious* functions (as an 'inner view,' or mirroring, of the action of the phronema); and at any time an *unconscious process* in the cortex may come within the sphere of consciousness by *having the attention directed to it.*" (p. 33).

Both authors evidently present the physiological framework around which consciousness and unconsciousness are built, and show plainly how the one is easily merged or converted into the other. If cerebration is the physical process of consciousness, as both admit, and unconscious cerebration is a fact, then unconscious cerebration can be nothing else than unconscious consciousness. Therefore, apparently Doctor Mercier has contradicted himself.

of conscious activity. These modern researchers have shown that the so-called Unconscious Mind may be regarded as the receptacle continually registering, as we have already noted, the impressions of the normal or immediate consciousness; and, that as these impressions sink into this reservoir, they pass out of the area of the instant or immediate mind, perhaps forever obliterated from active consciousness, but may be restored under peculiar conditions, such as in dreams, or in moments of excitement, or certain extraordinary situations which cause their resurrection.

Perhaps no other modern philosopher has made this fact so clear and convincing as the late F. W. H. Myers, who rounded out and presented in comprehensive completeness the results of the labors of the Psychical Research Society of England. It was he who invented the much debated term, the "subliminal self," and gave forth the psychological data on which he rested his theory of its existence. To quote his own words:

"The idea of a threshold (*limen*, *Schwelle*) of consciousness—of a level above which sensation or thought must rise before it can enter into conscious life—is a simple and familiar one. The word *subliminal*—meaning beneath the threshold—has already been used to define those sensations which are too feeble to be individually recognised. I propose to extend the meaning of the term, so as to make it cover all that takes place beneath the ordinary threshold, or say, if preferred, the ordinary margin of consciousness—not only those faint stimulations whose very faintness keeps them submerged, but

much else which psychology as yet scarcely recognises:—sensations, thoughts, emotions, which may be strong, definite, and independent, but which, by the original constitution of our being, seldom merge into that supra-liminal current of consciousness which we habitually identify with ourselves. . . . I feel bound to speak of a subliminal, or ultra-marginal, consciousness—a consciousness which we shall see, for instance, uttering or writing sentences quite as complex and coherent as the supra-liminal consciousness could make them. Perceiving further that this conscious life beneath the threshold or beyond the margin seems to be no discontinuous or intermittent thing; that not only are these isolated subliminal processes comparable with isolated supra-liminal processes, (as when a problem is solved by some unknown procedure in a dream), but that there also is a continuous subliminal chain of memory (or more chains than one) involving just that kind of individual and persistent revival of old impressions and response to new ones, which we commonly call a Self—I find it permissible and convenient to speak of subliminal Selves or more briefly of a subliminal Self.”

However, even before the Psychical Researchers attempted by experimentation and analysis to segregate the subliminal or sub-conscious from the supraliminal or self-conscious, many among the old school of experimental and physiological psychologists had already tentatively arrived at the same conclusion. Thus Dr. Maudsley in his celebrated and perhaps pioneer work on “Mind and Body” says: “The pre-conscious activity of mind, and the conscious activity of mind, which may perhaps now be deemed to be established, are surely facts.

of which the most ardent introspective psychologist must admit that *self-consciousness can give us no account.*"

CHAPTER V

PSYCHIC AND PHYSICAL CORRESPONDENCE

The object of the discussion which follows is to show that the activities of the so-called subliminal self are permanently recorded in that portion of the living organism which we have been calling the biological body, or the interior organisation of the cell activities. After we have attempted to make this proposition clear we shall then attempt to show that this interior nucleal body, the organism of the plastids or bioplasts, consists of such a substance and is so constituted as to be hypothetically capable of continued integrity under certain conditions after the dissolution of the visible body.

Let us first seek to understand the correspondence that exists between the nervous system and the mental organism when a sensation and a thought are experienced. "The process taking place in the nervous system may be briefly described thus: An impression of the surrounding world affects the skin, or one of the sense organs of an animal organism, and produces a shock upon the sensory nerve fibres. This shock is transmitted to the ganglion where it causes an action in the grey-matter of the nerve cells; this action of the ganglion is further transmitted to the motor nerve and when it reaches the end of the motor nerve a discharge takes place which causes the muscle to contract,

thus producing muscular motion. Along the whole line from the impression received to the muscular contractions there is an uninterrupted chain of motions."

Thus we see that every sensation which we experience is both caused by a certain series of motions or vibrations in the nerve cells, and causes another responsive series of vibrations in the muscular cells. These motions or vibrations move along the delicate grey substance of the cells and leave certain tracing or scars of their pathway. But not only are the vibrations in the grey cells caused by an affection of the external world, but as well by an *action of the will, a volition, or an uprising of the emotions*, that is, a spiritual sensation. Because some writers have seen the possibility of construing these mutual activities of mind and body into a mechanical interpretation of the soul and life, they have shied at them, and attempted to disregard them in their conclusions. Thus declares Dr. Scripture,* "There are many volumes of so-called 'psychology' in which each mental process is translated into some imaginary (for we have no facts on the subject) movement of brain-molecules, which in some imaginary fashion sets up another imaginary movement, which is translated into a second mental process that really followed the first one according to a simple psychological law."

Nevertheless it seems to be the final decision of experimental psychologists that such parallel and

*"Thinking, Feeling, Doing," p. 244.

complementary movements or processes do occur whenever we entertain a feeling, thought or sensation, and without such a basis of interpretation any scientific system of psychology seems to be impossible. Prof. G. H. Lewes* says: "There are numberless indications of a mental activity only recognisable as a *neural process*, not at all as a conscious process. . . . We class the changes in the sensorium under three heads of varying intensity, and call them conscious, sub-conscious and unconscious states. The two first are admitted by all writers. The last is proved to have an equal claim: for the unconscious processes not only take place in the same organs as the others, but are shown to have the cardinal character of sentient states by their influence in determining ideas and actions."

In fact almost all the modern leading physiological psychologists have reached a similar conclusion. It is now admitted that all the processes of which we have no conscious knowledge are recorded in the grey cells upon which they leave their ineradicable tracings. As Romanes says, speaking of what takes place when "a vibratory movement of the rate of about nine pulsations per second" affects a muscle under contraction: "What is the meaning of the movement? The meaning is that the act of will in the brain which serves as a stimulus to the contraction of the muscle and is accompanied by a vibratory movement in the muscle, is

*"Problems of Life and Mind," p. 20.

accompanied by a vibratory movement in the grey matter of the brain; that this movement is going on at the rate of nine pulsations per second, and that the muscle is giving a distinct and separate contraction in response to every one of these nerve pulsations."*

There are, in other words actual mental modifications of which we are wholly unaware which disturb the neural centres, causing a reassociation of the cell-centres; these activities are to be construed as part of our mental furniture as much as those modifications of which we are wholly aware, and which are the result of our wakeful consciousness. "If we are," says Bastian, "as so many philosophers tell us, to regard the sphere of mind as co-extensive with the sphere of consciousness, we shall find mind reduced to a mere imperfect, disjointed series of agglomerations of feelings, and conscious states of various kinds—while a multitude of *initial or intermediate nerve actions* would have no claim to be included under this category."

Ferrier shows very plainly the complementary relation between mental modifications and nerve activities, in the case he cites† of a woman who lost her power of speech on account of a cerebral hemorrhage. The centre of speech being through racial education in the left hemisphere, the peculiarity of this case was that by temporary education of the similar centres in the right hemisphere

*Mind and Body."

†"Localisation of the Functions of the Brain," reported in the "Journal of Mental Science," April, 1872.

of the brain a certain degree of ability to speak was restored to the woman. Says Ferrier, "Death occurred some fifteen years after the seizure, and it was found, post mortem, that there was total destruction and loss of substance in the cortical region in the left centre corresponding with the position of the centres of articulation. This seems to me to be one of the clearest cases of the re-acquisition of the faculty of speech by education of the articulating centres of the right side. . . . Aphasia being essentially due to the destruction, temporary or permanent, of the centres of excitation and organic registration of acts of articulation, is a significant proof of the fact that *there is no break between the physiological and psychological functions of the brain*, and that the objective and subjective are not separated from each other by an unbridgeable gulf."

We shall see in examples soon to be given that even more modern experiments among neurologists and psychologists have proved beyond a question that this alleged complete separation between the subjective and objective is not unbridgeable. But if it is not unbridgeable then it must mean that the nexus which exists is physical; that is, that there is a neural pathway between these two supposed contrasting and unassociated centres of the self, and that the subjective and objective interchange activities through this avenue. And this is the fact we are to consider.

When and under what circumstances may the supposed subjective or unconscious realm rise into

the conscious, and if the conscious realm subsides into the subconscious can it ever be restored?

The vast sphere of nerve activities which never rises at the time of the experience into the realm of the conscious plane, but remains in the molecular correlations alone, is the physical region of the subliminal self, where the vaster portion of all our experiences is recorded. As Ribot says, these are the innumerable nerve activities which have no accompanying psychic complement; that is, no conscious psychic complement; that, indeed, only a very limited number of physical or nerve activities resolve themselves into consciousness. Expressed in his own words: "Though psychic activity always implies nerve activity, conversely it is not true that nerve activity always implies psychic activity."

This conclusion is commonly accepted, if by psychic activity is meant conscious psychic activity. For we shall soon see that all the innumerable physical or neural processes, which at the time of the experience may not have resolved themselves into consciousness, are susceptible under other conditions of so resolving themselves, often to the unexpected pleasure or horror of the subject.

The sudden lapse of sober and moral characters into degeneracy and inebriety may doubtless be often accounted for by this uprising of forgotten incidents and associations which, disregarded when first experienced, afterwards under different situations overwhelm and conquer the normal self.

But sometimes the conquest of such passing and

transitory incidents in one's life become vivid, suddenly controlling impulses, or dream-memories, and result in strange psychical experiences. A case of this character is described by Miss Lillian Whiting which perhaps most people would ascribe to the intervention of a spirit, but which is doubtless to be attributed to the restoration from oblivion of a forgotten incident, called into dramatic importance.

Miss Whiting, the narrator, had been an intimate friend of Miss Kate Field, the well known American journalist, and was in 1899 bringing out a life of her deceased friend. Miss Whiting believes that she has frequently held communication with the spirit of Miss Field. She writes:

8th August, 1899.

Between 2 and 3 A. M., August 4th, Kate awakened me, speaking to me excitedly, about a "letter of Lowell's" to her. All was confused and rapid; but at last I caught clearly: "In K. F.'s W.—in my Washington, Lillian; look in my Washington." Then I vaguely recalled that Lowell had written her a letter in re International Copyright, which she had published in her journal and which I had already included in her biography, so I replied to her, "Yes, darling, I know—the letter is in the book. It's all right." . . . Again an excited and rapid speaking, of which I only caught here and there a word, but—partly from impression and almost impulsion—I rose, went into the parlor, turned on the electric light and took the five bound volumes of her "K. F.'s W." down from the shelves. Half automatically I seemed to be guided (for I had wholly forgotten its existence) to a letter that Lowell wrote to her in

1879, when he was American minister to Spain,—writing from Madrid, and she in London—and which, on his death, she had published in her Washington. (Miss Whiting explains that this letter was of considerable literary interest, and then adds):—As the original letter was not among Miss Field's MSS., and as I had wholly forgotten it (I don't even now recall seeing it, though I must have, at the time), this very important letter would have been left out of her biography, had she not thus called and led me to it. . . . Miss Field's waking me—her urgent and excited and forcible manner and words—were just as real to me as would have been those of some friend of this world coming to my bedside."*

Studying this curious experience, (which indeed was sufficiently vivid to have convinced the majority of people of its spiritistic source) in the light of Ribot's dictum, we may be forced to reach another conclusion.

This author asserts that while there may be innumerable nerve activities which have no reflex registration in the psychic consciousness, on the contrary, every mental experience which we have, even the slightest, is necessarily registered somewhere in the physical organism, showing that while the nerve activities may be continually exercised and the psychical centres be unaffected by them, *never can we have a mental experience unless it is registered in the nervous organism.*

Each one of these psychic activities, thus registered, as Ribot asserts, in the nervous organism, is

*Cited in "The Naturalisation of the Supernatural." Frank Podmore, pp. 225, 226.

a secret increment of the unconscious self. Those registrations lie buried deep within the cellular organisation; they constitute the physical instrument of the psychic or unconscious self; and unconsciousness is restored to consciousness, and finds its intelligent expression, when these identical nerve centres are once again aroused, and excite the psychic activities of which they are the complements.

Therefore, once admitting that Miss Whiting ever saw that lost letter, of which the alleged spirit of Miss Field, returning, reminds her, and we have all the physical and psychological elements necessary to account for its unconscious memory rising from her subliminal self and asserting itself thus forcibly to her normal or wakeful consciousness. The fact that the memory asserted itself energetically, rapidly, excitedly, is precisely the manner in which such a deep mental experience, so long lost from normal consciousness, would assert itself, once it rose to the surface. This we often perceive in the excited manner with which we become suddenly aware of something we have tried to recall and could not, when by some circumstance it is unexpectedly called to our minds.

All such incidents lead us the better to understand the nature and methods of the deeply buried seat of the unconscious or subliminal soul.

CHAPTER VI

THE PHYSIOLOGICAL UNDER-WORLD

It is, however, questionable whether Ribot's dictum that "it is not true that nerve activity always implies psychic activity," was not a hastily drawn conclusion resulting from insufficient data. The science of hypnotism has revealed the fact that under certain control subjects may be forced back into their forgotten lives and recall situations which had merely impressed their nervous centres but had not aroused an apparent psychic activity. There are also cases, such as the famous incident referred to by Coleridge, of the maid-servant, who knew nothing of any foreign language, but on being seized with fever, recited long passages from Greek and Latin works, which she had without any psychic consciousness merely received into her nervous centres by hearing her clerical master read them as she carelessly dusted his library.

Again we have the curious memory of a hypnosis, which recalls previous hypnoses, but knows nothing that took place in the intervening normal intervals. Wolfart relates the case of a woman who had remembered in the magnetic sleep all that had taken place in a magnetic sleep thirteen years before, although in the meantime she had never recollected it. (Moll). Here, manifestly, there were registrations made in the nervous centres, which never rose to the surface of the normal

consciousness, yet which had their psychic complements. In fact, a whole series of phenomena is involved in the possibility of every nerve activity receiving its psychic complement, however unconscious at the time. We refer, for instance, to such powers as are revealed in so-called "inspirational speakers," in the deliverance of such marvellous messages as came through the "mediumship" of Andrew Jackson Davis, and even the mysterious powers of so-called geniuses. In all these cases we detect the secret workings of the under-self, the subliminal realm, wherein there have been registered unobserved impressions upon the brain centres, whence they rise at certain times to the realm of consciousness or supraliminal expression.

The fact to which G. H. Lewes refers that the same physiological effects accompany the conscious and the unconscious state, and that every sense of impulse, whether discriminated or not, affects circulation and develops heat, proves how the mind is being constantly affected by the interior physical activities of which it is wholly unaware.

Dr. Maudsley* on this point says: "The brain not only receives impressions unconsciously, registers impression without the co-operation of the consciousness, elaborates material unconsciously, calls latent powers into activity without consciousness, but it responds also as an organ of organic life to the internal stimuli which it receives unconsciously from the body."

In fact, the mind is incessantly receiving psychic

*"Physiology of Mind," p. 35.

impressions, howbeit, unconsciously, from the nervous centres, else there would be no mental control of the entire system of involuntary organs on which the elements of organic vitality depend. We now know that every muscle is moved, every cell vibrated, every tissue vitalised, every organ actuated, by the mind that thus works unconscious of its own activity, or at least in a realm of sub-conscious activity. For the plane of the mind which thus acts in the involuntary realms of the body, and controls the chief centres of life, is that that we now know as the unconscious or subjective mind. This mind retaining the unutilised residuum of the multifold experience of the individual as well as that of the race, becomes the vast reservoir from whose depths the involuntary resources of life are summoned. "We are constantly aware that feelings emerge unsolicited by any previous mental state, directly from the dark womb of unconsciousness. Indeed all our most vivid feelings are thus mystically derived; suddenly, a new, irrelevant, unwilled, unlooked for presence intrudes itself into consciousness. Some inscrutable power causes it to rise and enter the mental presence as a sensorial constituent."*

In order that the argument which we are unfolding shall be fully elucidated it is necessary that the reader hold in mind the importance of the recently revealed scientific fact that every mental effort is recorded in the physical substance of the brain and nerves, and that no single nervous activ-

*Montgomery.

ity escapes the recognition of the mind, although such recognition may be unobserved at the time. The mind acts automatically as well as voluntarily. The automatic activities of the mind find their physical correlate in some especial molecular arrangement in the cranial substance, no less than the voluntary activities. The automatic registrations are as permanent as are the voluntary; and, what is of the greater importance, these altogether unknown automatic records may under certain conditions be reported to the conscious mental activities, and become a part of our wakeful consciousness.

We are, perhaps, well enough aware of the fact that the mind makes certain impressions on the nervous tissues; but the opposite and correlate fact that every impression on the nervous system causes its responsive mental state is hardly as well understood. Yet this is the simple fact and on this fact rests the physical basis of the memory, and its far reaching perspective into the past of our own and our ancestral life. Maudsley emphasizes this truth by explaining that if any excitation takes place between two nerve cells lying side by side, and between which there was not any specific difference, there will ever afterwards continue to exist a difference between them. This physiological process, according to this authority, is the physical basis of memory and is the foundation of the development of our mental functions. In his own words: "Not only definite ideas, *but all affections of the nervous system*—feelings of pleasure and

pain, desires, etc.,—*thus leave behind them their structural effects and lay the foundation (physically) of modes of thought, feeling and action.*”

It is with this vast physiological under-world* which we have especially to do in this discussion. For we are to attempt to discover whether not only this far-reaching but ever unobserved aggregation of living element, which has been building not only during the individual life of each of us, but during the ancestral lives of those from whom we have sprung, from the far-most distances of the racial history, is the physical home of the soul, but also whether the substance of which this aggregate consists may not be of such a character

*“Each sensory centre is the organic basis of consciousness of its own special sensory impressions, and each is the organic basis of the memory of such impressions in the form of certain cell modifications, *the re-induction of which is the re-presentation or revival in idea of the individual sensory characters of the object.* The organic cohesion of these elements by association renders it possible for the re-excitation of the one set of characters to recall the whole. . . . The organic memory of sensory impressions is the fundamental basis of knowledge. If the sense impressions were evanescent, or endured only so long as the object was present, the range of conscious intelligent action would be limited to the present, and we should have no real knowledge. . . . We might be conscious from moment to moment, but there would be no continuation in time, and knowledge would be impossible. The foundation of . . . consciousness . . . is the re-excitation by the present of the same molecular processes which coincided with a past impression. The sensory centres, besides being the organs of sensation or consciousness of immediate impressions, *contain, in the persistence and revivability of the co-incident physical modifications,* the material and possibilities of simple and complex cognitions, *in so far as they are dependent on sensory experience alone.*” David Ferrier on “Localisations of Functions in the Brain.”

that it prophesies its potential continuity after the dissolution of the visible body.

Here, then, we find the structural home of the unexplored if not unexplorable spiritual activities, which constitute what we are wont to call the soul, and which consist of the elemental psychic units of the so-called Unconscious or Subliminal Self. In the chapter on the "Phylogeny of the Soul"* we studied how this spiritual unity was made up, by age-long evolutions of the aggregate elements of momentary and individual experiences. We now learn how each one of those individual experiences, whether conscious or unconscious, is imbedded in the physical substance of the nervous system, from which it may be resurrected into the temporary consciousness of the passing moment. We shall have to enquire also whether the psychical organisation, made up of this infinity of individual experiences is itself susceptible of disorganisation, as is the physical substance in which it abides; and whether, as the primary physical element which encloses the psychic element consists of matter which is potentially indestructible, the psychic organisation may be of sufficient strength, if so highly developed, as to maintain the material organism (invisible within the present body) after the experience of so-called death.

We are permitted through psychological laboratory experimentation to enter almost into Nature's secret method of the formation of habits of the mind and its reflection of physical conditions. We

*"Modern Light on Immortality."

see from these experiments that the subtle stuff of the mind, if we may so term it, being made up of the psychic elements of the under—or subliminal—self, consists largely of mental states which are re-actions from physical situations. These psychic responses to physical states make up the organisation of the unconscious mind, which is the vast unexplored atmosphere that ever surrounds the conscious mind.

It would be well to relate here some of the experiments that demonstrate this fact. In Fere and Binet's experiments after they had caused the hallucination of a bird perched on the forefinger of a patient by suggestion, they proved that the mental perceptions were altered by a modification of the sensory centres, even without verbal suggestion, by the application of a magnet to the subject's head. "While she was caressing the imaginary bird, she was awakened and a magnet brought close to her head. After the lapse of a few moments she suddenly paused, raised her eyes and looked around her in astonishment. The bird which she supposed to be on her finger had disappeared. She looked about the room, and finally discovered it, since we heard her say 'So you leave me thus!' The bird presently disappeared again, and once more reappeared."

These authors assert that they can destroy or alter a suggested memory or a natural memory by the application of the magnet on hysterical subjects.

It is clear then, that what we call memory and

the data of knowledge are psychic reactions of physical excitations. There seems to be but little likelihood that Dr. Wundt's conclusion as to our psychological natures will be dissented from by the scientific world of the immediate future:—"The traditional opinion that consciousness is the entire field of internal life cannot be accepted. Our conscious psychic acts" . . . indicate . . . "unity in psychology. But the agent of this unity is outside of consciousness which knows only the *result* of the work done in the unknown laboratory beneath it. Ultimate psychic processes show that the Unconscious is the theatre of the most important mental phenomena. THE CONSCIOUS IS ALWAYS CONDITIONED UPON THE UNCONSCIOUS."

But is the Unconscious something permanent and constant, or is it variable and subject to ultimate disintegration? The answer to this question involves, as we think, both a psychological and a physical problem to which we shall now undertake to address ourselves. We shall proceed to study still further the formation and possible permanency of the Unconscious Self.

CHAPTER VII

THE MIND'S MYSTERIOUS MIRROR

That this inward self, called by Myers the Subliminal, and by authorities preceding him the Unconscious, is, as Wundt asserts, the most important part of our being, is sufficiently evidenced by a review of the office which it fills. Not only as we have already shown would memory and knowledge be impossible without it; that is, without this unconscious element of our being, consciousness itself would be impossible; but the entire machinery of our physical organism is dependent on its ceaseless watchfulness and superintendence, which proceeds so faultlessly without a moment's concern of our daily consciousness. By age-long education from the protoplasmic amoeba up to the full formed human, this slowly organised psychological unity has been built, till now every throbbing cell and vibrant fibre of our bodies, the action of every vital organ that sustains our breathing, digestion and the pulsing of the vitalising fluid through our veins, is the immediate ward of this mysterious and never-failing overseer. It is indeed the promoter of every passion, the energiser or inhibitor of every impulse and emotion, the creator of each providential instinct, the sexual guide and promoter of racial propagation, the awakener of paternal affection and the creator of maternal unselfishness, the instigator of the social solidarity

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and the prophet of human brotherhood and ultimate paradisiacal peace.

Were it not for this secret teacher whose pedagogic realm prevails in the inmost secret centres of our being, a schoolmaster whose invisible ferule ever whips us into obedience and whose undiscerned discipline is the divine agency that predominates all human life, progress were impossible and such an epoch in history as the achievement of civilisation were unattainable. As Hartmann so eloquently says:*

"It supplies every being in its instinct with what the body needs for self-preservation and for which its conscious thought does not suffice. The Unconscious preserves the species through sexual and maternal love, ennobles it through selection in sexual love, and conducts the human race historically, steadily to the goal of its greatest possible perfection. The Unconscious often guides men in their actions by hints and feelings, when they could not help themselves by conscious thought. The Unconscious furthers the conscious thought by its inspiration in small as in great matters, and in mysticism guides mankind to the presentment of higher, supersensible unities. The Unconscious makes men happy through the feeling for the beautiful and artistic. If we constitute a comparison between the Conscious and the Unconscious, it is obvious that there is a sphere always reserved to the Unconscious, *because it remains ever inaccessible to the Conscious.*"

In the italicised words Hartmann has doubtless erred, for as we shall see, more recent discoveries prove to us that the Unconscious is at least in part

*"Philosophy of the Unconscious."

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accessible to the Conscious, and that the so-called Unconscious is not strictly so, but rather a submerged or subterranean portion of the Conscious.

Yet because the Unconscious Self has been the long neglected division of the human being, and only recently has its existence been admitted as a scientific verity, it behooves us to examine and analyse it further in order that we may learn how, if at all, it differs from the normal but temporary consciousness. It will be necessary to examine its origin, its history, its powers, and its possibilities, in order to distinguish them from those of the normal consciousness. When this distinction is fully appreciated it remains to be seen whether it sufficiently emphasises such elements of permanence and indestructibility to justify the logical conclusion of the soul's possible immortality. In order to make this fact clear we shall briefly examine the laws that govern the senses and undertake to explain how the correlative activities of the Unconscious or Subliminal Self utilise physical centres which are not controlled by the normal or objective senses.

Examining first the sensation of sight, we know that in our normal state we see only through the physical eye; we know that we are dependent upon rays of light, upon certain vibrations of the atmosphere, and upon what we ordinarily understand as normal conditions, for the perception of physical objects through the ocular organ. I know that with my eyes shut I cannot see an object before me, although upon my eyelids I receive vague im-

pressions of the light of day; and I might be able to distinguish between night and day, or between a dark room and a lighted one. Other than that I would have no visual experience. But now the Unconscious Mind, the subliminal organ of the buried self, seems to act according to precisely the contrary conditions. It seems to be able to pierce opaque objects, to see without rays of light, and, in short, seems to possess such visual perception as is utterly impossible to the normal physical eye.

Many examples of this power might be given, for they have become surprisingly numerous in the records of recent years, but one or two, which are attested by sufficient scientific authority, must suffice. The following case is vouched for by Frank Podmore.*

"Mr. W. A. Dobbie, the experimenter in this case, is a gentleman residing in Adelaide, S. Australia, who has practised hypnotism for many years, and has hypnotised chiefly for curative purposes thousands of persons. . . . When on a visit to this country in 1889 he allowed us to inspect his notes. The following account is extracted from them:

"June 10, 1884.

"Up to the present time this has been the most interesting case I have had."

"(Mr. Dobbie then explains that he had mesmerised Miss — on several occasions to relieve rheumatism and sore throat. He found her to be clairvoyant.)

"The following is a verbatim report of the second time I tested her powers in this respect, April, 1884. There were four persons present during the

*"Studies in Psychical Research," 1897.

seance. One of the company wrote down the replies as they were spoken. . . .

“‘Her father was at the time over fifty miles away, but we did not know exactly where, so I questioned her as follows: ‘Can you find your father at the present moment?’ At first she replied that she could not see him, but in a minute or two she said, ‘O yes, now I see him, Mr. Dobbie.’ ‘Where is he?’ ‘Sitting at a large table in a large room, and there are a lot of people going in and out.’ ‘What is he doing?’ ‘Writing a letter, and there is a book in front of him.’ ‘Who is he writing to?’ ‘To the newspaper.’ Here she paused and laughingly said, ‘Well, I declare he is writing to A. B. (naming the paper). ‘You said there was a book there. Can you tell me what book it is?’ ‘It has gilt letters on it.’ ‘Can you read it or tell me the name of the author?’ She read or pronounced slowly, ‘W. L. W.’ (giving the full surname of the author). She answered several minor questions re the furniture in the room, and then I said to her: ‘Is it any effort or trouble to you to travel in this way?’ ‘Yes, a little; I have to think.”

“‘I now stood behind her, holding a half crown in my hand, and asked her if she could tell me what I held in my hand, to which she replied, ‘It is a shilling.’ It seemed as though she could tell what was happening miles away easier than she could see what was going on in the room.

“‘Her father returned home nearly a week afterwards, and was perfectly astounded, when told by his wife and family what he had been doing on that particular evening; and although previous to that date he was a perfect skeptic as to clairvoyance, he frankly admitted that my clairvoyant was perfectly correct in every particular. He also informed me that the book referred to was a new one, which he had

purchased after he had left home, so that there was no possibility of the daughter guessing that he had that book before him. I may add that the letter in due course appeared in the paper; and I saw and handled the book.' ”

Indeed a large array of experiences might be given under this head to emphasise the fact of the Unconscious Mind using other physical media than the visible senses for the discernment of material objects. The somnambulist, as an example, who is sound asleep and has no normal consciousness whatsoever of his physical activities, walks nevertheless as well with his eyes tightly closed in the darkest night, as when awake, with his eyes wide open in the brightest day, and unhaltingly proceeds to whatever destination he may desire. He apparently sees every object in a dark room as well as, and possibly better, than he can see with the normal eye when awake, and permits nothing to interfere with his rational actions.

I shall, however, refer to but one more case under this heading, as it is authenticated by Flammarion, and seems to have the ear-marks of genuineness. The eminent astromomer who has been devoting himself for many years to a cautious examination of the subject we are considering, in 1899 sent forth a General Inquiry respecting the observation of telepathy, manifestations of the dying, premonitory dreams, and in general existing unexplained psychic phenomena. He received 4,280 replies. Among these there were 1,758 letters giving very complete recitations of personal experiences with such phenomena. He presents a

number of them in his "Mysterious Psychic Forces," to one of which I desire especially to refer.

M. Castex-Degrangé, originally a great skeptic in whom mediumship unconsciously developed, sub-director of the National School of Fine Arts in Lyons, "upon whose veracity and sincerity not the least suspicion can rest," narrates a number of such experiences. Among them I find the following:

"One evening in an assembly composed of a score of persons, a lady dressed in black greeted my entrance with a little nervous laugh. After the customary introductions, this lady spoke to me as follows:—

"‘Sir, would it be possible to ask your spirits to reply to a question I am going to ask?’

"‘In the first place, madam, I have no spirits at my disposal; but I should be a lack-wit, indeed, if I said yes. You, of course, don’t suppose that I am unintelligent enough not to find some kind of an answer; and consequently if my spirits, as you so kindly call them, should happen to respond, you would not be convinced, and you would be right. Write your request. Put it in an envelope there on the table and we will try. You see that I am not in a somnambulist state, and you must believe that it is wholly impossible for me to know the contents of what you are going to enclose in it.

"So said, so done.

"At the end of five minutes I assure you I was very much embarrassed. I had written a reply, but it was such I did not dare to communicate it. But here it is:

"‘You are in a very bad way, and if you persist

you will be severely punished. Marriage is something sacred, and it should never be regarded as a question of money.'

"After some oratorical precautions I decided to read her this reply. The lady blushed up to the roots of her hair, and stretched out her hands to seize her envelope.

"'Pardon me, madam,' I replied, putting my hand upon it. 'You began by making fun of me; you wished a reply. It is only just, since we are making an experiment, that we know what the request was.'

"I tore open the envelope. Behold its contents:

"'Will the marriage take place that I am trying to bring about between M. X. and Mlle Z.? And in that case shall I get what I have been promised?'

"Notwithstanding this shameful exposure the lady did not consider herself beaten. She asked a second question under the same conditions.

"Reply: 'Leave me alone! When I was living you abandoned me. Now don't bother me!'

"Upon this the lady got up and disappeared! I told you she was in mourning. This last request of hers was as follows: 'What has become of the soul of my father?'

"Her father had been ill for six months. Persons who were present and who were stupefied at the results, told me that during his illness she had not paid him a single visit."

Now, what is it that sees under these conditions? We know it is not one of the normal senses that can see fifty miles away or read a letter enclosed in an envelope some distance from the reader. The normal mind is certainly not the percipient. It can be nothing else than what we have called the Unconscious Mind, the mind of the un-

der-realm of physical experience and sensation. Naturally such phenomena are now often explained by referring them to the achievements of so-called telepathy. But telepathy itself must be explained. What is telepathy other than the capacity of the Unconscious Mind to utilise the *unrecognised registrations upon the nerve centres*, there impinged either by the stimuli of unobserved physical affections or by the play of foreign mental forces upon them.*

*I shall, in a future chapter, examine this subject more in detail and seek to expose what I believe to be the common misapprehension of the nature of telepathy.

CHAPTER VIII

SUPER-PHYSICAL SENSES

Similarly in regard to the sense of touch, which is really the only physical sense of the human organism (all the other senses being but variations of it), we find the same contradictions between normal and extra-normal tactility. There have been many experiments in psychological laboratories to prove that the sense of touch may be differently used by the unconscious mind than by the conscious. Sometimes, for instance, it allows itself to be substituted for the sense of sight; as in the case of Professor Crookes who, when at one time experimenting with a medium, put his hand behind him and placed a finger on an open page of a book. Without himself seeing the book, as it was behind him on a table, or knowing what if any word his finger happened to be on, he asked the medium, who herself was so situated that she could not see the book or the place where his finger was, to tell him the word which his finger touched. She said "However"; turning himself round he saw to his amazement that his finger did touch just that word.

But in the laboratory experiments we have the most convincing cases presented to us. Alfred Binet, in his "Double Consciousness," narrating the manner by which a subject with one hand an-

æsthetised still writes without knowing what the hand is doing, says:

"After having determined experimentally the maximum distance at which the subject can read the largest letters of a series, we invite him to read certain smaller letters that are placed below the former. Naturally enough, the subject is unable to do so; but, if at this distance, we slip a pencil into the anaesthetic hand, we are able by the agency of the hand to induce automatic writing, and this writing will produce precisely the letters which the subject is in vain trying to read. . . . It is highly interesting to observe that at the very time the subject is repeatedly declaring that he does not see the letters, the anaesthetic hand, unknown to him, writes out the letters one after the other. If, interrupting the experiment, we ask the subject to write of his own free will the letters of the printed series, he will not be able to do so, and when asked simply to draw what he sees, he will produce a few zig-zag marks that have no meaning.

"Let us further remark that, although the subject maintains that he sees nothing, the automatic, nevertheless, reproduces all the letters marked on the black board, with perfect regularity, beginning at the first and ending with the last. . . . I was easily able to establish the fact that, after closing the left eye of the subject, and putting into his anaesthetic hand, without his knowledge, a pencil, the automatic writing was brought to reproduce all the letters which we passed before the amaurotic eye. The amaurotic eye, accordingly, did see, notwithstanding its apparent blindness; in other words, the second consciousness was the one that saw. . . . We must accordingly suppose that, during the experiment the second consciousness directs the line of sight, without the knowledge of the principal subject."

In this experiment both the sense of touch and that of sight seem to work in a manner out of the ordinary; the hand writing without knowing what it inscribes, even while unaware of the pen or the motion, and the eye seeing what the ordinary eye could not behold.

But there are experiments, sufficiently vouched for, which seem to indicate that the sense of touch can be extended, as it were, from the organs and be made to feel objects in the distance.

The use of the magnet, with hysterical subjects who have been hypnotised, shows that the unconscious mind perceives certain sensations of which the conscious mind knows nothing. For instance, when lethargy is induced on one side of a subject and catalepsy on the other side the approach of a magnet, *without touching the subject*, causes the lethargic side to become cataleptic, and the cataleptic to become lethargic. In the same way, when the state is somnambulistic on one side and cataleptic or lethargic on the other side, the magnet causes transference.

“But also in each particular hypnotic state, symptoms can be transferred from one side of the body to the other by the use of the magnet, e. g., the individual contractures in lethargy, and particular postures of the limbs in catalepsy. In somnambulism, contractures as well as hallucinations of one side, and hemi-anaesthesia, can be transferred in the same way. Binet and Fere say that when hypnotic subjects write with the right hand, they reverse the direction of the writing under the influence of the

magnet and write at the same time with the left hand.”*

Here we see that the unconscious mind is susceptible to a sense of touch wholly unknown to and beyond the plane of the conscious mind. The normal senses manifestly play no part in this performance. Yet, the very fact that a physical instrument is employed, and the fact that, as we know, a certain force (that is, a high velocity of vibration), is brought to play upon the physical body of the subject, proves that certain molecular activities have been set up in the sensorium. The normal consciousness, the present mind, has no faculty whereby these activities or sensations can be perceived. The subliminal or unconscious mind, manifestly perceives the impressions made by these vibrations. But such impressions are made upon the interior substance of the physiological cells. The unconscious mind must therefore be able to perceive these impressions; just as the conscious mind perceives the impressions made upon the cells of the normal organs of the body. In other words, the Unconscious seems to have access to a deeper physical recess of the organism than the Conscious. It would seem that the vibrations which affect the outer walls of the cell when the nervous system is agitated become the field of the perceptive faculties of the conscious mind while those vibrations which penetrate into the interior of the cell, into the nucleal mass, are reserved for the receptive field of the Unconscious Senses.

*Moll: "Hypnotism."

That is, the residuum of motion which remains from the external contact of the cells, and sinks into the substance of the chromosome, to which we have referred, becomes the especial instrumentality of the subliminal mind in the exercise of its perceptive functions. This is the physical substance, in its nature deathless, as we have intimated, which retains in its essence the hereditary forces of the individual.

That the plasm, or the primal, living substance of the cell, is the seat of all the residual motion which is perceived as sensation and consciousness, is now admitted by the highest biological authorities. Thus, for instance, Haeckel argues in his "The Wonders of Life," p. 293:

"The term 'reaction' stands in general for the change which any body experiences from the action of another. Thus, for instance, to take the simplest case, the interaction of two substances in chemistry is called a reaction. In chemical analysis the word is used in a narrower sense to denote that action of one body on another which serves to reveal its nature. Even here we must assume that the two bodies feel their different characters; otherwise they could not act on each other. Hence every chemist speaks more or less of 'sensitive re-action.' But this process is not different in principle from the reaction of the living organism to outer stimuli, whatever be their chemical or physical nature. And there is no more essential difference in psychological reaction, which is always bound up with corresponding changes in the psychoplasm, and so with a chemical conversion of energy. In this case, however, the process of reaction is much more complicated, and we can dis-

tinguish several parts or phases of it: 1, the outer excitation; 2, the reaction of the sense organ; 3, the conducting of the modified impression to the central organ; 4, the internal sensation of the conducted impression; 5, the consciousness of the impression."

Consciousness, then, according to this author, is the result of the disturbance of the *cell-plasm*, and the perception of the impressions which such disturbance makes upon this substance. Until the reaction, resulting from the action of one cell upon another, causes changes in the plasm, there is no possibility of consciousness. Before such change takes place the reaction of the stimuli is merely sensitiveness or irritability. As Ostwald says, "What we call sensation or perception of stimuli may be regarded as a special form of the living force or actual energy." Continues Haeckel:*

"The living substance at rest, which is sensitive or irritable, is in a state of equilibrium and indifference to its environment. But the active plasm that receives the stimulus has its equilibrium disturbed, and corresponds to the change in its environment and its internal condition. . . . At each stimulation the virtual energy of the plasm (sensitiveness) is converted into living or kinetic force (sensation)."

Thus we observe consciousness cannot take place till the plasm itself is disturbed by the chemical or psychic stimulation. There is, manifestly, a vast residuum of the "reaction" which takes place between the cells that constitutes the basis of potential consciousness; that is, which remains within

*Id., p. 293.

the cell substance, but which has not yet been observed by the psychic organ. Or, if it has once aroused the perception of the psychic organ, it has again returned in some transmuted form of energy to react from the cell upon other portions of the organism. This residuum of energy, as I understand it, which is bound up within the cell-plasm, but remains within a section of the cell which is unaffected by, or can affect, the conscious self, is the realm of activity which the unconscious self perceives—which is, in short, the vast resource of the subliminal consciousness. In a future chapter we shall discuss the relation of this involved cell-energy to psychic phenomena. The entire sympathetic system of the nerves, which control all the involuntary or unconscious activities of the living organism, are doubtless constituted of cells of this nature. That is, the cells of this system, doubtless, are so affected by the internal chemical or psychic stimuli that the cell substance receives, namely, “the internal sensation of the conducted impression,”* but not sufficiently intense to be converted into the “consciousness of the impression.”

Therefore the subliminal consciousness, or the Unconscious, perceives the internal impressions on the “psychoplasm,” which are inaccessible to the perception of the supra-liminal consciousness, or the consciousness of the wakeful life. Here, then, resides the vast and unexplored storehouse of all the possible future consciousnesses which by unusual circumstance, by extraordinary excitation,

*Haeckel.

may be stirred up in the deeper centres of the life-substance and aroused from their abodes.

The first stage of consciousness is "reflex action." While it remains in this stage we call it sensation. Sensation consists of the immediate reaction of one cell upon another. Consciousness, however, comes only when the "reaction" has disturbed the inner centres of the cell, the cell-plasm, penetrated, so to speak, "the holy of holies" of the supreme self. Says Haeckel:*

"The greatest and most fatal error committed by modern physiology is the admission of the fatal dogma that all sensation must be accompanied by consciousness. . . . Impartial reflection on our personal experience during sensation and consciousness will soon convince us that these are two different physiological functions, which are by no means necessarily associated."

We learn indeed, from daily experience that what at one moment may be a state of consciousness, at the next may have reverted to mere unconscious sensation, and conversely, that what are at first momentary states of passing and unobserved sensation, may in an instant become states of consciousness. The young pianist, for instance, recalls with humor if not disgust, the thousands of painful sensations she first experienced in learning the mastery of a difficult instrument; but after years of practice, when the most complicated compositions are rendered without any conscious effort, and merely as a mechanical process, (the mind in a sort of trance or dream state), it is evident that

**Wonders of Life*, p. 289.

the primary states of consciousness have become mere modes of unconscious sensation, howbeit the primary sensations had been immediate modes of consciousness.

“The same may be said of thousands of sensations and movements which we learned at first consciously in childhood, and then repeat daily afterwards without noticing—such as walking, eating, speaking, and so on. These familiar facts prove of themselves that consciousness is a complicated function of the brain by no means necessarily connected with sensation or the will. To bind up the ideas of sensation and consciousness inseparably is the more absurd, as the mechanism of the real nature of the consciousness seems very obscure to us, while the idea of it is perfectly clear—we know that we know, feel and will.”

The fact, then, that there is this distinct cleavage between the field of sensation and consciousness seems to afford a scientific explanation for certain so-called occult phenomena, which would otherwise apparently be beyond explication.

There are certain incidents, for instance, which seem to prove that some people have the peculiar faculty of *feeling at a distance*. We shall in a moment present some illustrations. Mostly these sensations occur to these individuals when in a state of trance or at least when the normal will is more or less in a state of quiescence. We shall shortly see that the unconscious or subjective mind is the most active when the normal or objective mind is subdued. This would seem to indicate that as the conscious mind ceases to perceive the

cellular sensations which are upon the immediate surface, the unconscious mind discerns the more remote or profound sensations in the interior of the organism. Let us attend to some of the cases reported.

CHAPTER IX

SUPER-PHYSICAL SENSES

(Continued).

The next class of phenomena to which we are now to refer has been called *Telæsthesia*. Ever since the phenomena of so-called animal magnetism have been recognised, an effort has been made to explain them on the theory that human beings are surrounded by an invisible fluidic double, a sort of a subtle atmosphere, which is susceptible of imparting to some people certain sensations, wholly inappreciable by the fleshly senses. Following Mesmer's exposition of this theory Montravel, in the 18th century, in his essay on "The Theory of Animal Magnetism," dilates upon the possibilities and nature of the etheric or fluidic body which surrounds the normal organism and which he declares is something like a material soul superintending the activities of the body. Deleuze, of the Paris Museum, in 1813 published "A Critical History of Animal Magnetism," from which I quote:—

"Most psychics perceive a bright, luminous fluid surrounding their magnetiser, and given off with especial intensity from the head and the hands. They recognise that he is able to concentrate this fluid at will, direct it, and impregnate various substances with it. Many see it not only when in an actual state of somnambulism, but also during several minutes after their awakening. They find it to

possess an agreeable odor of its own, which gives a peculiar flavor to water and food. . . . As I have obtained these data from all psychics whom I have consulted, and as magnetisers in all countries have obtained the like, I am compelled to admit the existence of a magnetic fluid.”*

Baron von Reichenbach published books, late in the 19th century, in which as the result of experiments with psychics he concludes that every animal organism emits a sort of radiation, variable in intensity with the health and spirits of the subject; that the daylight increases the radiation, as well as food and physical activity; during sleep and hunger, the radiation grows fainter; it has its periods of fluctuation every twenty-four hours, and is perceptible only to “psychics” although it covers the entire body, rendering it luminous, being brightest in certain parts of the body, such as the tips of the fingers, the eyes, the palms of the hands, the pit of the stomach, etc. Streams of light, like tongues of flame, flare from the eyes, the tips of the fingers, the nostrils and the ears.

It is also said that these appearances have different colors as they become apparent in different parts of the body. The right side, it is said, gives off a radiation of a blue hue, giving a cool feeling to the touch, while the left side gives off a red flame that is warm to the touch. The fluid that he says surrounds the body Reichenbach called “od,” and distinguished it from magnetism, by experimenting with a subject, through whose body

*This quotation is from “Future Life” by L. Elbe, who copies it from M. de Rochas’ works.

strong charges of electricity could be sent without the experience of unpleasant sensations, whereas slight charges of the odic fluid would cause very vivid sensations. He showed also that he could transfer the odic fluid to many other substances, but that the conductivity in speed was inferior to that of electricity, yet greater than that of heat. Moreover, while the object magnetised will for some long time retain the magnetic fluid, an object that is permeated with the odic fluid rapidly loses the influence—the odic fluid is quickly dissipated after the object is affected by it. Reichenbach also asserts that heated objects appear much cooler to an odic subject, or a psychic under the spell of the odic influence, than when they are actually chilled. He also noted certain important distinctions between the action of magnetism and the odic force, in that the latter could be accumulated in almost all objects, whereas there are but few which are susceptible to the affections of magnetism. He noted also that the two poles of the od could transfer to one another, the positive becoming negative and the negative, positive; that is, the psychic would sometimes see the blue flame on the right side and the red on the left, which is a transference that never takes place in the operations of the magnetic force.

Reichenbach observed that a psychic could follow the light of a crystal body, which emanated from it, as she would follow the light of a lantern in the dark. He also observed that crystals, small metallic rods, or small glass discs, if charged with

odic force and held between the fingers, caused a peculiar rotary movement, due, he thought, to the force emanating from the fingers or person of the psychic. He thus undertook to explain the many physical phenomena, such as the moving of tables, the sounding of raps and concussions, etc., which he claimed were controlled by the odic force emanating from the sitters in a circle, as could be shown by the way in which they held their hands, and the peculiarity of the persons who formed the circle.

There is not, however, sufficient scientific certainty accredited to the Reichenbach experiments, and we must therefore regard them as merely suggestive, and as inciters to other more efficient and accurate scientific experimentations.

Quite a number of experimentalists, some of them of the highest scientific efficiency, followed in the wake of Reichenbach, many of them confirming his conclusions. Fleetwood Wharley testified in 1865 before the London Dialectical Society that experimenting with Mrs. Wharley he had discovered indubitable proofs of the "existence of odic flames emanating from magnetised bodies, crystals and human beings." But it remained for M. de Rochas to produce the most exact and conclusive scientific data respecting this strange force, up to the present time. His methods were so scientific in their character that but little doubt is thrown upon their accuracy, whatever conclusions one may draw from them. He found one very fortunate subject who was possessed of a high degree of discernment of the odic effluvium, even in broad

daylight, when he was brought into the proper condition under hypnosis. In this state his eye was examined with the ophthalmoscope, when its physiological condition was found to be much altered. He, being a draughtsman, was enabled to draw the visions he observed, and of course made them much more vivid and impressive than the mere descriptions of psychics heretofore depended on. M. de Rochas came to the conclusions that the so-called odic effluvium was a genuine phenomenon, which could be perceived by the retina. He confirms Reichenbach by showing that it assumes certain constant characteristics, such as the flame-like form which is emitted from certain extremities of a body. But the length, intensity and color of the flame vary with the subjects, depending on the state of the hypnosis into which they have been thrown. He admits, however, the possibility of these discernments being the outcome of suggestion,* for he says that the description of the effluvium may to some extent be spoilt by its intervention. Rochas says that when an object is magnetised effluvia will be induced at the extremities. Especially is this true in a piece of iron, whether a straight bar or horse-shoe shaped. The color of the effluvium depends on the direction of current of the force; it will last as long as the magnetisation. In soft iron the effluvium rapidly disappears after the induction, but in steel it will become permanent. It has also been observed that

*We shall show in later pages how Prof. Dodd undertook to explain all the phenomena as absolutely results of suggestion.

the effluvia will be affected by draughts, the same as a gaseous flame would be, so that it would appear that the molecules of the atmosphere are in some degree affected by the odic current. This would seem to indicate why the eye can sometimes detect the effluvium because of an especial glow given it by the condition of the atmosphere.

It is quite evident that the phenomena thus far noted may be referrable to certain states of mind induced in the subjects by the operators or mesmerisers which are not registered in the organs accessible to the normal consciousness. Nevertheless, they must be actual physical states, for the subject reports certain physical sensations, when in a state of trance or hypnosis, which, however, are unnoticed by the subject when restored to consciousness. I quote here M. de Rochas' description of the appearance and effects of the odic force upon a subject, and the curious results of certain experiments performed upon them while in this state.

"After the first passes the sensitivity of smell and that of the skin disappear, and the subject may be pinched, pricked, or even burned, and ammonia can be placed beneath the nose, without his noticing anything, but he continues to hear and to see.

" . . . Moreover, the sense of touch, instead of being resident as usual upon the surface of the skin, now spreads beyond the body according to definitely ascertained laws. . . . At the beginning of externalisation, a light mist forms about the body, perceptible only to clairvoyants, and this by degrees condenses and becomes more brilliant, finally assuming

the appearance of a thin layer three or four centimeters from the skin and following the contours of the body. If the magnetiser acts upon this luminous layer in any manner whatsoever, the subject experiences precisely the same sensations as if the action were actually upon his skin, but he feels nothing or next to nothing, if it is exerted elsewhere. He also feels nothing unless the action proceeds from a person en rapport with the magnetiser.

"Should magnetisation be carried to a still higher degree, a series of equi-distant layers six or seven centimeters apart, double the distance of the first layer from the skin, forms itself around the subject, who is sensitive to touch, pricking or burning, only upon these layers, which occasionally succeed one another to a depth of from two to three meters, and inter-penetrate and inter-cross without becoming modified in any appreciable manner, their sensitivity decreasing in proportion as they are removed farther from the body. After a certain lapse of time, which may vary but generally after the third or fourth lethargic phase, the concentric layers manifest two maxima of intensity, one upon the subject's right side and one upon his left, and two poles, as it were, of sensitivity are there formed."

Now the most surprising feature of these experiments was the discovery that if inanimate objects such, for instance, as a glass of water, were placed within the field of sensitivity, removed from the body of the subject, they seemed to be charged with the subject's sensations; and, what is still more surprising, these objects would retain the subject's sensitivity even when removed from the field. That is, just as a bit of steel or iron may be magnetised, and the iron will retain the magnetisa-

tion for some time, so the object placed within the field of psychic sensitivity would become charged with it and retain it for some time, even when no longer within the field. If when the glass of water is thus charged with the subject's psychic sense the operator touch it ever so lightly with his finger, the subject instantly feels it, and experiences the same sensations that he would if he were so affected in his normal senses. This charged liquid can be used much as the ancient wonder workers were said to use lay figures and "mummies," and cause affectations or sensations on a distant body without its personal knowledge.

Indeed, this discovery gives almost a scientific explanation of the so-called witchcraft of other ages, when it was supposed that alleged witches could, by exercising their mind on certain objects, or by certain physical manipulations, cause the desired pains and sufferings to be felt in the bodies of persons far distant. However, on closer examination it becomes quite apparent that these effects were not produced by the mere psychic atmosphere, or within the field of the odic layer, but *chiefly as the result of the workings of the mind of the magnetiser*. For "the sensitivity in the mummy is closely analogous to the situation created by the state of rapport, during hypnosis, for then, too, the subject receives at a distance all the impressions to which his magnetiser is subjected, just as he does in the case of the mummy."

However, though, the effect in the subject may be produced as a mere mental state by the opera-

tor, and the theory of the invisible etheric layers may be an error, still, it is evident that certain physical transformations are produced in the subject, which are not amenable to his wakeful consciousness. Therefore, it is apparent, the subliminal mind or the unconscious self *discerns these recondite operations in the subject's organism, which are inaccessible to the discernment of his normal consciousness.*

The next phase of Telæsthesia which it behooves us to study is the force which apparently proceeds from the medium or psychic and exercises itself upon material substances. There is a rich and varied array of apparently honest testimony as to the surprising phenomena which are said to have been witnessed. Ever since the mysterious rappings which are said to have been heard by the Fox sisters in the early forties, near Rochester, N. Y., a sort of epidemic seems to have seized the world and every now and then such startling occurrences have been witnessed in households where they were least suspected or anticipated. For a long period, naturally, the scientific savants glanced scornfully at the pretensions of people of inferior intellect who persisted in declaring they had witnessed the amazing facts that were widely advertised. But some men of sufficient courage to face the ridicule and persecution of their confreres at last ventured on the dangerous pursuit. Among these the first, and at the time, perhaps, the foremost, is to be mentioned the Count de Gasparin, of Switzerland, who in 1853 delivered to the world in two large vol-

umes the results of his investigations. In America we had Judge Edmunds and Professor Robert Hare, whose labors were dignified and consequential, but which were never accepted by the school of legitimate scientists as worthy of their attention.

Count de Gasparin seems to have made the alleged fraud in all such pursuits utterly impossible by the precautions which it is said he took and the exact scientific method he adopted. As will be seen, however, from his own language the Count became, in the course of his studies, an enwrapped and enthusiastic apologist. He became enamoured of his labor and jealous of the results, believing that they were genuine scientific acquisitions. Hear him:

“It is a question of positive fact that I wish to solve. The theory will come later. To prove that the phenomena of turning tables is real and of a purely physical nature; that it can neither be explained by the mechanical action of our muscles nor by the mysterious action of spirits—such is my thesis. It is my wish to state it with precision and circumscribe its limits here at the very start. I confess I find some satisfaction in meeting with unanswerable proofs the sarcasm of people who find it easier to mock than to examine. I am well aware that we have got to put up with that. No new truth becomes evident without having been first ridiculed. . . . Only those have invincible conviction who have participated in seance studies frequently and directly, who have felt under their very fingers the production of these peculiar movements which the action of our muscles cannot imitate. . . . They have at times seen the legs of the table (riveted by

some enchantment to the floor) refuse to budge on any terms, in spite of the incitement and coaxing of those who compose the chain. On other occasions they have seen the same table legs perform levitations that were so free and energetic that they anticipated the hands, got the start of the orders and executed the thoughts almost before they were conceived, and with an energy well-nigh terrifying. They have heard with their own ears stunning and gentle raps, the one threatening to break the tables, the others of such incredible fineness and delicacy that one could scarcely catch the sounds, and none of us could in any degree imitate them. They have remarked that the force of the levitations is not diminished when the sitters are removed from the side of the table that is to form the fulcrum. They have themselves commanded the table to lift that one of its legs over which rest the only hands that compose that portion of the chain still remaining, and the leg has risen as often and as high as they wished. They have observed the table in its dances when it beats the measure with one foot or with two; when it reproduces exactly the rhythm of the music that has just been sung, when, yielding, in the most comical way, to the invitation to dance the minuet, it takes on grandmotherly airs, sedately makes a half turn, curtsies, and then comes forward, turning the other side. The manner in which the events took place told the experimenters more than the events themselves."

When we note that the table used in these uncanny experiments was "a round oak top, thirty-two inches in diameter, which rested on a three-foot central column, the feet being twenty-two inches apart," we must confess, if we are to concede the events mentioned as facts, void of fraudu-

lency, that they introduce us to some force in nature wholly out of the common and as yet entirely unknown or at least unrecognised by the scientific schools.

To summarise briefly the additional achievements of the Gasparin circle we may state that they succeeded in causing the levitation of the table several inches from the floor, then by suddenly all lifting their hands above the table in the air but their fingers still mutually touching in a circle, and then all together moving round and round, the table did exactly the same thing and just in the manner and in the same periods of time that they moved; the chain, being formed at a distance of one-eighth of an inch above the table, when it was ordered to lift up one of its legs it did so; then, without touching the table in any way when ordered to hoist itself high in the air, it did so and resisted the effort of one of the witnesses to fetch it back to the floor; when commanded to turn bottom side up, it obligingly lifted its legs in the air and lay on its round top, although none of the company touched it with their fingers; a plate turning on a pivot held a tub; the tub filled with water followed two of the experimenters around the room, after they had plunged their hands in the water but did not again touch the tub; the table responded to a number which one of the experimenters wrote out, none of the rest of the circle seeing it, as their eyes were kept shut; this experiment was repeated ten times in succession, each of the ten experimenters trying once, and there was

but one failure; the table is made to levitate with the weight of a man on top, and lest the human weight should assist rather than deter the levitation, two large buckets filled with sand weighing 143 pounds are placed on top the table, and, while the table could not lift the full weight, when it was reduced and the table caused to gyrate at full speed the 143 pounds of sand in the buckets were cast on the table and in no whit did the movement of the table pause or hesitate, but kept on whirling round so swiftly that the sand flew in all directions. Such is a brief and incomplete summary of the alleged remarkable achievements of the Gasparin circles in 1853.

It should be noted that according to the Count, the severest precautions against any occurrences of fraud were taken. For instance, when he reported to some savants what the table had done on the lifting of the hands of the circle they advised him to sprinkle powder or flour over the table, and if after the table levitated they saw no signs of hands or fingers they would accept it as invincible proof. He tried these prescriptions and to his delight no marks of any kind could be found on the powder thus scattered over the table. The Count eloquently descants on the precautions taken and the impossibility of fraud:

“Fraud and muscular action! Here for instance is a fine opportunity to put them to proof. We have just placed a weight on the table. This weight is inert, and cannot be accessory to any device. Fraud is all around it perhaps, but it is not in the tubs of

sand. This weight is equally divided among the three legs of the table, and they are going to prove it by each one rising in turn. The total load weighs 165 pounds, and we scarcely dare to increase it for, as it is, it was enough one day to break our very solid table. Very well; now let some one try to move the weight. Since muscular action and fraud must explain everything, it will be easy for them to put the mass in motion. Now they cannot do it. Their fingers contract and their knuckles whiten without their obtaining a single levitation, whereas, some moments later, levitations will take place at the touch of the fingers, which gently graze the table's top, and make no effort at all, as any one may easily convince himself.

"Certain very ingenious rules of measurement, for which I cannot claim the credit, put us in the way of translating into figures the effort which the rotation or levitation of the table demands when loaded in the way described. With the above-mentioned weight of 165 pounds, rotation is secured by means of a lateral traction of about 17 1-2 pounds, while levitation is only obtained by a perpendicular pressure of 132 pounds at least, (which I will reduce out of deference to the ideas of the circle, to 110, on the supposition that the pressure might not be absolutely vertical). Several deductions may be drawn from these figures.

"In the first place, muscular action may cause the table to turn, but it cannot lift it. As a matter of fact, the ten operators have one hundred fingers applied on its surface. Now, the vertical, or quasi-vertical, pressure of each finger cannot exceed twelve ounces on the average, the chain being composed as it is. They only develop then a total pressure of 66 pounds, which is quite insufficient to produce levitation.

"In the next place, this striking thing befalls, that the phenomenon which muscular action could easily produce is precisely the one that we most rarely and with the greatest difficulty obtain; and that the phenomenon which muscular action could not compass is the one the most habitually realised when the chain is formed. Why does not our involuntary impulse always make the table turn? Why should not our 'fraud' always procure such a triumph? Why, as a general thing, do we only succeed in effecting that which is mechanically impossible?"

Chronologically, the next most important events in the psychical-scientific world were recorded by the Dialectical Society of London, founded in 1867 under the presidency of Sir John Lubbock. We shall here present a brief summary of the results of their experiments as presented in their Committee's report made in 1869.

(1) That sounds of a varied character, apparently proceeding from articles of furniture, the floor and walls of the room (the vibrations accompanying which sounds were often distinctly perceptible to the touch) occur, without being produced by muscular action or mechanical contrivance.

(2) Fourteen witnesses testify to having seen hands or figures, not appertaining to any human being, but life-like in appearance and motility, which they have sometimes touched or even grasped, and which they are therefore convinced were not the result of imposture or illusion.

(3) Five witnesses state that they have been touched, by some invisible agency, on various parts of the body, and often, where requested, when the hands of all present were visible.

(4) Five witnesses state that they have seen red-

hot coals applied to the heads or hands of several persons, without producing pain or scorching, and three witnesses that they have had the same experiment made upon them with like impunity.

(5) Eight witnesses state that they have received precise information through rappings, writings, and in other ways, the accuracy of which was unknown to them at the time, or to any persons present, and which, on subsequent enquiry was found to be accurate.

(6) Three witnesses state that they have been present when drawings both in pencil and in colors, were produced in so short a time, and under such conditions, as to render human agency impossible.

(7) Six witnesses state that they have received information of future events, and that in some cases the hour and the minute of the occurrences have been accurately foretold, days and even weeks before.

(8) That the conditions under which the phenomena occur are variable, the most prominent fact being that the presence of certain persons seems necessary to their occurrence, and that of others generally adverse. But this difference does not seem to depend upon any belief or disbelief concerning the phenomena.

CHAPTER X

A PERSONAL EXPERIENCE

Nothing, of course, is so reassuring as personal experience. One may hear or read a thousand times of uncanny and weird phenomena, and yet experience but a slight realisation of the import and amazement such phenomena impart. Therefore, it might be fitting to relate at this juncture a certain experience of my own in the bosom of my family, which came as unexpectedly and with as startling effect as a crash of thunder from a clear sky. I have never before published the account of these occurrences, chiefly because they were interrupted and were therefore not capable of being subjected to the investigation of others. Their weight as evidence will hence depend entirely upon the confidence placed in the veracity of the narrator, and they would not here be recounted except for the fact that they were the immediate means of causing him to look without prejudice into these mystifying occurrences which have so often been reported from so many different points of the compass. Since this thing came into my life I have not been able to say "Such things cannot be." It at least caused me to become as curious and as confused as Hamlet on witnessing the apparition of his father.

It was in the fall of the early nineties, having but recently come from the interior of the state to re-

side in New York City. In search for apartments we found a comfortable floor, one flight up, consisting of three rooms with intervening closets and wash rooms, in a private house, used by a well known modiste. The lower floor she occupied herself, as living rooms, and the floor above us she utilised as the work shop where her seamstresses were employed. Our party consisted of my wife, myself, a baby boy a few months old, and a bright, large-eyed Irish girl of some twelve or fourteen summers, who was engaged to nurse the child.

The little girl possessed one of the most striking and handsome countenances I ever saw in a child of her years. Her head was unusually large, covered with a forest of black hair, that curled and hung frowsy and careless over her shoulders; her eyes were grey blue, sparkling with brilliance, and her mouth and full lips were always wreathed in smiles and laughter. She was of such a cheerful and winning type that my wife, who is extremely cautious and hesitant about strangers, engaged her almost instantly when she sought the place. She possessed the volatile, mercurial nature of the Irish people, but was thoroughly honest and reliable; at least we found her so in all her relations with us, until a memorable occasion arrived, to which I shall soon refer, that caused us to wonder whether she was the incarnation of Ananias or Munchausen, or was some delicate instrument upon which strange powers were playing.

She had so endeared herself to the baby boy that he could scarcely live a moment without her. He

loved to be near her every moment, and when none other could comfort or silence him, she never failed to overcome him with her bewitching influence. That Mamie, for such was her name, would ever deceive, or steal, or lie, or prove false to her trust, never for a moment entered my wife's mind or my own. She had lived with us for some months before we engaged the apartment above referred to, and in her daily walk she proved herself as faithful and trustworthy a nurse and employe as one could wish.

Yet on one occasion, after we were comfortably settled in the apartments, an event occurred which almost made my wife lose confidence in her truthfulness. I had purchased tickets for the Opera. The carriage was waiting at the door, everything was in readiness, and my wife, fully attired, save only for a pair of gloves which she had carefully laid beside her on the dressing case to slip her hands into as soon as she learned of the arrival of the carriage. When I looked out of the window and saw the four-wheeler roll up to the pavement and pause, I said, "Come on, dear, the carriage is here."

"All right, darling, I'm ready."

I was standing at the door, which was ajar, prepared to guide my wife down the stairway to the vehicle. "Come on, dear, don't delay, please, it's quite late."

Then I beheld a startled and confused look like a thin shadow cover my wife's face. She called Mamie, asked her something hurriedly, and both

of them bent over the dresser, looked behind it, dropped on their knees and searched beneath it, then scurried around the room as though they had both been suddenly struck with a blast of lunacy.

"What in the name of heaven is the matter, dear," impatiently I cried. "O these women, when will they ever be on time."

"Stop," she cried, "stop dear, if you say anything more I shall positively cry."

Then I saw something 'was wrong. My wife had become hysterical, the little girl was troubled plainly with sympathetic pain, and it began to dawn on me that something had taken place to spoil a night's pleasure.

"What is the matter, my dear?" again I cried.

"My gloves, my gloves," hysterically she gasped.

"Well, what of your gloves, there they are," I exclaimed mechanically. For I myself had seen the gloves on the dresser as I had gone toward the door, and I really thought I could instantly put my hands on them. But when I approached the place where I had seen them they were not there!

"That's the trouble my dear," my wife, seeing my confusion, replied. "Those gloves have disappeared, and I'm simply crushed with disappointment."

"Put on another pair," I cried, "and come on."

"No, I have no other pair to match my gown, and I cannot go. It's impossible!"

I saw her determination was absolute and all my eloquence could not prevail against her decision. I was compelled to pay off and dismiss the

driver and forego the pleasure of an evening at the Opera.

When Mamie had retired my wife confided in me that she could not allow herself to suspect her, for she had always been so faithful and true, yet she determined to make a search of the girl's clothes after she had fallen asleep and satisfy herself.

The search was made with exaggerated detail; every inch of her garments and every nook and corner of the apartments where she might possibly have concealed them; and even the bedclothes and the mattresses were examined the following day; yet not a trace of the gloves could be found.

My wife was bewildered. I was disgusted. I knew, in my confidence, that of course they would turn up somewhere about the rooms, though I could not prophesy where.

A few days after, when I had returned from business, my wife came to me with white face and pale lips and whispered in confidence that she had found the gloves. I laughed and told her she had permitted the affair to assume too mysterious an aspect.

"Not at all," she exclaimed. "Where do you think they were found?" Of course I did not know. But it seems that the very next morning when the housemaid had gone to the front of the house she saw lying on top of the ash barrel this beautiful pair of gloves all covered with smut and besmirched. Not knowing to whom they belonged, she kept them for several days until she learned of their owner.

This little incident was the first of a series of most mysterious and annoying situations.

I kept a memorandum book on my desk in which I recorded daily my business transactions. It was a most important document, and to lose it would cause not only considerable annoyance but possible financial loss. One day I returned from business and as was my custom went immediately to the desk to record several transactions. I opened the desk, which was always locked by me on leaving in the morning, and reaching out my hand to seize the book where it always lay, to my surprise it was not there. I searched through all the drawers, through every pigeon-hole, everywhere throughout the desk, but the book nowhere was to be found. Thinking that I might have mislaid it elsewhere in the apartment, I made an exhaustive search through every corner, nook and cranny, but the book refused to make itself manifest; it had vanished. I was never able to find it. It had simply dissolved, apparently, for no trace of it could be seen anywhere. Remembering the gloves I naturally rushed for the ash barrel, but in spite of the fact that I insisted on the ash man emptying the contents of the barrel before me that I might examine them, it was of no avail. The book could not be found.

I could not imagine that Mamie would have made way with it; for she knew how necessary it was to me, how valuable, and if she were prompted by a spirit of mischief she at least was not cruel or vicious. It never for a moment occurred to me to

connect the loss of the book with her, for I could conceive of no motive that would impel her to such a theft.

Scores of little things like this, however, now began to occur almost every day. Little losses, things mysteriously misplaced and turning up in the most unimaginable places, till the petty losses began to grow exceedingly annoying and got on both my wife's nerves and my own.

My wife was especially annoyed, I remember, at one time by the curious miscarriage of certain little toilet articles which she employed in arranging her hair at night before retiring. These little things would actually disappear before her very face; while she was using them, and even while fastening one to her hair, the rest would vanish, nowhere to be found that night, nor for several successive days. When, suddenly, *mirabile dictu*, as about to retire, while standing before the mirror, and trying some substitute for the lost implements, she would, perhaps, carelessly drop her eyes on the dresser, and there, believe it who will or believe it not, there lay the thing as though it had never been removed!

The situation was getting uncanny. Neither my wife nor myself thought of connecting Mamie with these weird and inexplicable events, but now as I look back I can see some chain of connection, although I am quite convinced there was no conscious deception on her part, as I think subsequent developments will reveal.

On a later occasion, as the uncanny plot seemed

to be thickening, my wife, on retiring, approached the door to lock it, as was her custom. The lock was without a key, and after much search, not being able to find it, she got into her bed, covered with distrust and confusion. No sooner had she stretched out her limbs, about to cast herself confidently in the arms of Morpheus, when her toes fell upon something cold and chilling. Leaping from the bed in horror, yet always being self-contained under such circumstances and not abandoning herself to hysteria, she hurled the coverings off the bed to discover—let the gods witness!—the very key which had disappeared from the door-lock. Of many little confounding and perplexing transactions of this sort, I knew not at the time, as my wife did not wish to confide them to me lest I might think her childish, and she revealed them only after the more portentous and amazing occurrences transpired in which I myself participated.

The three rooms all had connecting doors, which at night we naturally closed. I occupied the front room, facing Eighteenth Street, directly opposite the site now occupied by the big store of Siegel Cooper & Co.; my wife occupied the rear room, which adjoined by an alcove the middle room where Mamie and the baby boy lived mostly during the day, and Mamie slept at night. My wife always insisted on the alcove being unscreened during the night so she could call Mamie at a moment's notice if the baby required attention. The door between Mamie's room and the one I occupied was separated by a tier of closets and a lavatory,

being a distance, say, of four or five feet. There was a door at each end of the lavatory, one at Mamie's room and one at mine. The three rooms covered the entire length of the building and we were, as I have said, the only occupants of the floor.

One night, as I was just about retiring, my coat removed and hanging over the back of a chair, Mamie rapped on my door.

"Come in," I said.

"Did you rap, Mr. Frank?" she asked.

"No, no, I didn't rap; what made you think so?"

"Why, I thought I heard you rap. Excuse me." She retired.

A few moments later just as I had one shoe off, again Mamie rapped and immediately called out, "Why, Mr. Frank, didn't you rap, *then*? Your wife and I thought we heard a rap."

"O, nonsense, Mamie, no, I didn't rap. Go back to bed and be quiet. You must have heard some noise outside."

Before proceeding to remove the rest of my garments it occurred to me, considering the many strange things that had happened, that possibly there might be taking place one of those curious phenomena about which I had read so often but with which heretofore I had had no personal experience. I thought I would better not retire. I remained standing in the middle of the floor, just under the central chandelier, thinking I would read something and await developments. I had not long to wait. This time Mamie came bounding

through the door, not waiting to knock, and with white face cried, "Didn't you hear it then, Mr. Frank? Something is knocking somewhere and we both thought it was you!"

Yes; then I myself had heard it; it had rapped so loud that I distinctly heard it through the two doors, though I must have been full ten or fifteen feet away, and the doors between were closed.

I needed no more urging to make a search. I opened the door of my room that led to the hallway, thinking I might discover somebody there who was playing a joke on us. But nobody was in sight. I went into Mamie's room; my wife and the baby boy had retired in the rear room, the open alcove between, but she of course was wide awake. I waited some time. Nothing took place. I began to rebuke them both for their folly and nervousness. Finally as I sat down in a chair in the middle of the room, it must have been full five feet from the door that leads into the hall way, I was suddenly startled by a terrific stroke on the door, the sound seeming to come from the other side. I obeyed my first impulse and made a swift rush at the door, thinking to open it quickly and discover the joker who was causing us this disturbance. Unfortunately the door was locked. I unlocked it and hurriedly looked all around in the hall, up and down stairs, but could discover no direct cause for what was taking place.

I began to take the matter seriously. I closed the door, leaving it unlocked, sat down again, asking Mamie to sit on the bed, a little nearer the

door than where I was, and I waited, but not long, perhaps only a few seconds, when a crash came; that is the only word to express it—a crash that I thought would demolish the door itself. Like a fury I flew at it, thrusting it wide open, feeling sure I would find some one on whom to lay my hands. But alas! there was nothing but the ordinary situation. Nobody to be seen. I went back to my chair in disgust. I sat down. Mamie sat on the bed, her head resting on her hand which was reclining on the bedstead.

Some time now intervened, till I almost fell into a doze, when suddenly a crash of still greater fury than the first blast thundered through the door, so loud, so furious and so forceful, that it shook the entire house, and so caused the stationary wash stand in the corner of the room near the door to vibrate that it hurled from its top the several articles used by the baby, not only some of his playthings, but his sucking bottle, the cups and spirit-stove used at night for heating his milk, etc. The shock was so startling it caused my knees to weaken and I almost fell to the ground.

Suffice to say that such occurrences were repeated far into the night, the shocks sometimes being lighter, sometimes severer, till having become somewhat monotonous, and our nerves being quite exhausted, about the breaking of dawn we all fell asleep in our several places.

The next afternoon, about five o'clock, the rappings began again. This seemed to be the hour set by whatever instrumentalities were at work,

for the inauguration of the performance each day, till by our removal from the abode we retreated from the onslaught of these mysterious forces. This night the occurrences were very similar to those of the previous night, although I had a slight opportunity to experiment with the forces as regards the possible intelligence involved. After the perplexing agency, whatever it might be, had reiterated its several well known phases for some time, quite late into the night, I said to Mamie, "Mamie, you lie down across the end of the bed, at the foot, and I will lie down on the edge of the bed, my head near to its head."

We so lay for some time. Then there transpired a thing that was exceedingly interesting. Soft, distant, velvety, purring sounds were heard at the foot of the bed, like the ends of one's fingers playing a swift and musical tattoo on the boards. "Ah," I said to myself, "my little lady, I think I have found you out; some way you are in this game. You are making those raps."

But Mamie was apparently lying still, motionless, as I lifted my head to watch her. No sooner had I dropped my own head again on the pillow, than there came across the head-boards the same sort of uncanny sounds I had heard at the foot of the bed. Indeed, the sounds were so distinct, I could count the beating, the rhythm of them. Then they descended from the top of the head board, slowly, softly, till the very fingers moved so closely to my head, I felt the motion of them in my very hair. They were tripping the boards back and

forwards, like when one plays the piano. My breath was almost taken away; yet I was not in the least frightened; I was merely overwhelmed with amazement. Of course I now knew that Mamie could not have accomplished this feat consciously or with her physical organism. She was lying quietly at the base of the bed. I desired to learn all I possibly could of the character of the force that was at work, so while the ghostly fingers were running rapidly back and forward on the head-board of the bed, I slowly injected my own fingers into my hair to see if I would perceive any feeling in them. To my wonderment, if not indeed bewilderment, the very finger-forms of the presence, whatever it was, became interlocked with my own and felt like as if the air had become thickened and moved softly through my fingers and over my hand. I lay there enchanted although completely bewildered. Thus while wondering what next would come to pass: this it was. The force suddenly moved away from my head and descended under the bed. Manifest raps came from that source. Of course I lay still and commanded Mamie to do likewise. Then the bed seemed to be seized by some gigantic power and was made to vibrate throughout its entire form. This agitation suddenly culminated in the swift vibrating of the springs in the woven-wire mattress. Thrusting my hands under the bed and seizing the mattress, I felt the wires still vibrating with decisive and fervent agitation.

The third day I concluded I would come home

earlier to observe whether anything more could be learned. So I came back by noon. Then I determined I would experiment with Mamie. For, while it was very apparent that the little girl was wholly unconscious of her agency in these transactions it was quite convincing to me that she was the instrument which was being employed. I therefore decided that I would undertake a series of experiments with her.

I called her first to my room, the front room of the apartments, in which, up to that period, nothing had occurred. I had Mamie sit on a chair and I sat some distance from her. Soon the rappings began, which quite surprised me, for they had not, up to this moment, manifested themselves in the day time.

As I sat in my chair I said, "Mamie, please go slowly toward the door that is closed between your apartment and this room." Slowly, and doubtless herself bewitched with curiosity, she moved toward the door, when, having come, say, within three feet of it, that same terrific though somewhat steadier and less vibrating sound occurred. I tried this with her several times and the rappings would occur without fail. Then I determined I would make all possible deception on her part, if indeed such a thing were conceivably possible, incapable of success. So I bound Mamie's hands behind her, and gripping her by the elbows, while holding them firmly, I walked her slowly toward the door, when, without a pause, as we approached within, say, three feet of it, the swift, abrupt, sudden shock

occurred. What was always apparent to the ear was that the sound came from the other side of the door; as if some one were rapping to enter it. This I tried many times with Mamie till the invincible response of the rapping, never once having disappointed me, became monotonous and ceased to surprise or amaze me; but it absolutely convinced me that Mamie could not have been a conscious agent.

Of course it was to be supposed that ere long the other inhabitants of the house would begin to take cognisance of these disturbances and make enquiries. It occurred, I believe, on the third night of the transactions. When one of those fearful, shattering explosions happened, the landlady shouted up from below, "What is all that noise about? It must stop!"

I stepped into the hall and said, "My dear Madam, I must apologise; but certain things are taking place over which I have absolutely no control, nor any one in my apartments. But if you can assist us to ferret out the mystery, it will put me under the most lasting obligations."

With that she came bolting up the stairs evidently overjoyed that she might trace the source of the annoyance herself. She was an Irish woman, possessing a strong and most positive character, and entered on the search with the determination and ability of an expert sleuth. She not only peered into every closet, insisting on taking down each garment and examining every device on which it hung, and on turning up every rug, and

handling each piece of furniture in which anything might possibly be concealed, but she tore all the beds apart, shaking each bit of covering with the vigor of a hound crunching its victim, till, with an angry outburst, she left in disgust, merely exclaiming that we "knew very well what caused the disturbance if she could not discover it, and it must be stopped and that at once."

Well, there seemed to be almost poetic justice in what immediately followed, for both my wife and self felt exceedingly humiliated, not to say aggravated, at having it insinuated that we were spiritistic fakirs, and had invented some mechanical device whereby we might create a sort of "Walpurgis nacht" within the confines of this very quiet domicile.

Thus, scarcely had the angry woman retired, and reached the bottom of the stairway, when the same provoking, and this time almost humorous, disturbance again began. They (whatever forces were at play) seemed to rejoice in the chance to "kick up a rumpus" and acted most disgustingly. The noises grew louder and louder, and thinking the lady might want to see now for herself what was going on, I called to her, having opened the door, to come up and be her own witness. The lights had been put out below and when she came up, candle in hand, what was my amazement to see the candle go out as she reached the top of the staircase, although I saw she did not blow it out herself. Apparently she did not observe this, as she was now guided by the light of our room

through the open door. But as I stood in the middle of the room awaiting her entrance, just as she reached the door, what did this boorish and uncouth "thing" do, but shut the door with a slam in the very face of the woman, preventing her entrance and sending her down headlong with fright to the bottom of the stairs!

There were so many strange things occurring that it is impossible to record them all. My wife informs me, for instance, that on one afternoon, when she had locked the door, it flew wide open as if to allow some one to enter. But I am desirous of giving only the more important events. I had one opportunity of speaking to the "thing" and seeking the quality of its intelligence. One night after the performance had been long continued, and the hour was near the dawn, it occurred to me to question it. Somehow it was not necessary to instruct it regarding the signals of response, but it replied spontaneously with the signal of one rap for "no" and three raps for "yes."

"Do you desire to communicate with any one in this house?"

"Yes" (three raps).

"Will you indicate with whom it is you desire to communicate?"

"Yes."

"Is your message anything relating to the baby?"

"No" (one rap).

"Is your message for my wife?"

"No."

"Is your message for me?"

"No."

"Is your message for Mamie?" Personally I had a feeling that it was to communicate something to the little nurse-girl that caused all the commotion. But to my surprise the answer to this question was: "No."

Then a thought occurred to me, to which I did not attach much importance: "Is your message for the landlady?" Scarcely was the word out of my mouth, indeed I had not but begun the sentence, when there thundered three terrific raps, that could be called nothing less than concussions, as if to indicate the importance and terribleness of the message to be imparted.

I regretted very much that by this time my wife's nerves had been so tortured with anxiety and a weird feeling imparting something of an uncanny anticipation of what might be divulged, that she pleaded with me to desist and permit her and the rest of us to go to sleep.

Thus unfortunately what might have revealed something of the nature of the operating force was necessarily prevented. But the following curious fact should not be forgotten, as lending much light to the subject. The landlady who was a fashionable modiste, having been in these quarters for about eight years, and built up an excellent patronage, suddenly, after our leaving the place, left for parts unknown. We had rented the rooms for a year, and had nothing interfered would have continued to inhabit them. Therefore when we

came to the apartments, certainly no thought of removing from them was then contemplated by the landlady. But some two weeks after we had left them, some business calling me into that street, a sort of curiosity possessed me to look at the place again, and on seeing that the blinds were all closed I made enquiry and found that she had moved away and nobody could inform me where. This circumstance only added to the involved mystery.

There were, however, some disappointing situations. Nothing can be more satisfactory to the parties involved in transactions of this character than to have them take place in the presence of persons who had been wholly uninterested and who come merely as chance visitors. We had hoped, for the sake of our own satisfaction, that something like this might occur. So, having mentioned the affair to some who sat at the table with us in our boarding place, one young man expressed a desire to witness the scenes, and I eagerly extended to him an invitation.

But the fates were not propitious. Although he sat with us for over an hour, nothing occurred. Naturally he went away somewhat suspicious of the veracity of myself and family. However, on another occasion the fates were so kindly and accommodating that, being persons unhappily under suspicion for what was beyond our power to control, we could but bless them for their generous interposition.

It was the hour when Mamie began singing the little baby boy to sleep. The landlady's family had

all gone to the theatre, but as there was some extra work to be finished the seamstresses were requested to remain and complete the order that night.

It had occurred to them that as their mistress was absent enjoying the theatre they might indulge in a riotous orgy themselves. Their shouts, laughter, stamping and hand-clapping became so obstreperous that it was impossible to get the baby to sleep. Timidly, therefore, I approached the stairway and called up to the young ladies that it would oblige us very much if they would kindly postpone their hilarity until we had succeeded in soothing the child into its nightly slumber. Then there followed my gentle request a roar of insulting laughter that quite took me off my feet. A rather heated conversation resulting, I discovered that the young women had heard the extraordinary racket which the alleged "spirits" had the night before enacted, and with offensive banter they replied that if we intended to invent our racket they would introduce a little of their own. Surprised at their insinuation, I replied that if the innocent young women thought these uncanny performances were inventions of our own it would give me much pleasure if they would come into our apartments and witness them for themselves. Instantly they applauded the request and flew with eager anticipation down the stairway, unceremoniously entering our apartment. There were six or seven of them, the oldest, about twenty-five years of age, being a shrewd, keen-witted and brutally abrupt Frenchwoman.

She it was who had incited the girls to the dis-

turbance for the sake of achieving the *coup* she desired of gaining an entrance into the rooms.

Instantly she beset herself to the task of making a personal examination of the apartment and studying each possible nook or cranny where any secret devices might be found. Well, they had been in the rooms for some time waiting impatiently for the alleged "spiritistic" performances, when becoming offensive and insulting, the Frenchwoman remarked that it was as she knew it would be, nothing could happen while they were in the room.

"Well," I replied, "it may be so, for I am sure I cannot control or order the situation." Recalling, however, some of the personal experiments I had made with Mamie, I concluded to try the same tactics this time to see if they would avail. There was a sofa whose head was about two feet from the door which opened into the hall, through which the girls had entered. They were now standing in a row in front of the window at right angles with the sofa, wondering if anything would occur. Having exhausted their vulgar epithets and insinuating billingsgate they had about determined to leave the apartment in disgust. At that juncture I said, "Mamie, won't you please lie down on the sofa."

Quietly and slowly Mamie glided to it and gently lay her head upon the pillow. Instantly there broke through the door one of the most intense and frightful concussions which had at any time occurred. Again and again it thundered like the pounding of a fiend with an ax, or more like the bursting of shells within the very walls. I myself,

accustomed as I had now become to these strange acts, was quite overcome by the thunderous sounds. The effect upon the heretofore insulting girls was paralysing and electrical. They shouted, screamed hysterically, fell on their knees, turned deathly pale, and one of them became almost cataleptic. It was necessary for me to face them, to shake my fist in their faces, roaring at them to be quiet lest the police be summoned and interfere. The insulting French girl utterly lost her nerve and begged to get out. I opened the door and all of them flew through it, as if they had been shot out of a cannon, and ran up-stairs.

A more convincing demonstration to skeptics could scarcely have been devised, or with more dramatic emphasis.

I was called away to Boston for a day, and on my return was told by my wife of a series of transactions that were enough to raise one's hair. Time and again chairs were turned upside down in her very presence; when she would leave her rocker, on which she had been sewing, and return to it she would find it on its face, its rockers in the air. Vases glided gracefully from the mantle and rolled along the floor intact and uninjured. On the last day that we were in the apartments, to live there, I returned from business to find them deserted. My wife, nurse and boy were at the boarding house, and going there, I learned that she had left the apartment, overcome with disgust and amazement at what had finally occurred. While she and Mamie were attending to the morning work

in the rear rooms, a most startling affair had been taking place in the front room, where my desk and books were. She had locked the door and left things topsy-turvy as they were. I might go and see for myself. All three of us went back to the apartment. What did we behold! Every piece of furniture except one was turned over upside down and lay comically on the floor. The large and quite cumbersome sofa lay shamefully on its face; all the several chairs were overturned, and my desk, the roll top down, yet partially open, was also lying on the floor, its legs against the base board.

What concerned me immediately was the fact that I had left a bottle of ink in the desk, and I feared that it might have spilt and spoilt my papers. So I knelt down to peer underneath the roll top. My wife was at my left side and Mamie on the other. Between Mamie and myself there stood the only upright piece of furniture in the room. It was a small ebony wood table on which lay a number of heavy books. While I was gazing under the desk and my wife was also thus employed, as well as Mamie, suddenly the little table *flew up into the air*, casting overboard its cargo of literature which fell, littering the room, while the table, top downwards, fell back upon the same spot which, but a moment before, its legs had been occupying.

That our consternation was complete goes without saying. Thinking that possibly Mamie might have deftly accomplished this feat, I attempted it myself, but I was utterly unable so to manipulate my motions, that I could overturn the table with

its load of books in such a manner that it would return top downwards to the exact spot from which I lifted it. Besides, it required quite an exertion even to lift the table and the books, and such an exertion that I could not possibly have concealed from those in such immediate contact as I and my wife were with Mamie.

Thus ended the drama of the weird actors of the air! My wife thought it best to leave the apartments at once, and so counselled. Thinking it was perhaps wise, under the circumstances, and lest we might ourselves be brought into unenviable notoriety through the inexplicable phenomena, reluctantly I yielded. But those five days and nights constitute an epoch in my life. They have opened up my mind to the reality of certain forces whose powers and *modus operandi* are manifestly contrary to the operations of the known forces of nature. It stopped my lips from ever again scoffing at such possibilities.

Finally I should not fail to say that the strain upon the nervous system of the young nurse girl was so severe, she was greatly reduced in weight, her skin had become pale and cadaverous, the lustre of her naturally bright eyes had faded, and she seemed to be on the verge of a complete collapse. My wife was compelled to send her home to recuperate. She vowed that she had never heard of spiritualism or ever witnessed such transactions as she in this place herself had seemed to be the unwitting agent of. She visited my wife two years afterwards, and said that nothing of the

kind had occurred again in her life, and she hoped she was free from the influence.

However, that I may be wholly truthful, as far as memory will allow, for the incident just related occurred about twenty years ago, and that every essential feature of it may be known, I must recite the curious and almost contradictory climax. I had returned very early one afternoon from a business engagement, and soon found that many perplexing transactions had been taking place during my absence. Some of them were of a phase I had not personally witnessed, one in particular, the gliding of an expensive glass vase from the shelf of the mantelpiece and rolling unharmed along the floor. I had been in the rooms perhaps a half hour. Everything was quiet. My wife was engaged on some incidental work in the front room, Mamie was straightening up the rear room, after the morning's work, and feeling slightly fatigued, I lay down on the bed in the middle room. As I have already said, this was an alcove room opening with a wide aperture into the rear apartment.

Just as my eyelids were slowly closing, I was suddenly made aware of a startling vision, which for the moment took away my breath. Up to this incident nothing in the life of Mamie had caused either of us to doubt her honesty or truthfulness. Yet there she was, sure as fate, clear as light! Slyly, swiftly rushing to the mantle, and, quick as lightning, seizing the vase, she rolls it rapidly along the floor.

I could scarcely believe my eyes. 'At first I was

sure I was mistaken, I did not want falsely to accuse the girl. Yet I could not help it. I cried out, in rather tremulous voice, "Mamie, what are you doing?" "Nothing at all," she protested. Of course my wife could not but believe I was mistaken, it was an optical illusion, for we had already seen so many inexplicable transactions it was unnecessary for Mamie to deceive us even if she wished to. Naturally I said nothing more about it, but I was confident my vision had not deceived me.

Two years later, Mamie, visiting my wife in up-town apartments, acknowledged to her that she had played the trick. "Why did she do it?" She could not tell. Suddenly an impulse seized her to make the vase do through her agency, that Mr. Frank might see it, what it had before done of its own accord for Mrs. Frank. She could not explain the impulse, and she was heartily ashamed of it.

Now what shall we say of this? Does the fact of the deception wholly controvert the truthfulness of the unaided incidents to which I have referred? At the first shock one experiences on such a discovery there is but one deduction to be made. "False in one, false in all."

But consider the circumstances; recall how I experimented with Mamie, her two elbows held tightly by my hands from behind her, while I walked her slowly toward the door, and then heard those crashing blows on the other side of it; the terrifying strokes on the hall door, Mamie lying on a couch several feet away and her head towards

the door, which so paralysed the working girls; the playing of the phantom fingers on the bedstead at my head, Mamie lying at the foot, and the vibrating of the wire-woven springs; and all the other perplexing situations I have narrated. Certainly these Mamie could not invent.

Why, then, did she want to invent any? Here is a mystery, and after studying it for many years I have reached this conclusion:

Who has not sometime experienced an impulse whose force he could scarcely resist and whose meaning he could not fathom: the feeling of wanting to jump out of a window, throw oneself from a high hillside, or cast oneself under a swiftly approaching train? I suppose everybody at some time has experienced strange emotions or impulses of this sort that rise from a source he cannot divine.

It is needless here to review the possibilities of the sub-conscious depths, and the uprisings that betimes affright us from its mysterious realms. Well, Mamie had never before witnessed such trying experiences in others as she had herself been undergoing for several days, till she was distraught, her nerves exhausted and prostrate, her flesh emaciate, her complexion cadaverous, her strength so far gone that, as I have said, my wife had finally to send her home to recuperate.

Here she is in the swirl of excitement through five days and nights, enjoying but slight and broken slumber. Her reflex forces had been called into such constant exercise that their mechanical habits

were now uppermost. She acted half as if she were in a trance, part of the time. In this state, having just witnessed some unusual performances, on the part of these unknown powers, before my entrance, excited because Mrs. Frank had said she wished I had been there to witness them, seeing me at rest, anxious that I should see this strangest of all the antics; her sub-conscious or reflex self suddenly gets control of her normal nature, and in a trice, almost unconscious of what she is doing, she glides to the mantle and rolls the vase along the floor. Was it fraudulent? Of course. Was it excusable? Certainly not. Yet does it vitiate the original genuine performances? I think not.

I think it simply proves what curious, mystifying influences seize upon one who is so constructed that the balance between the normal and the sub-normal consciousness is not absolutely established.

It explains many of the frauds among the so-called mediums; for it shows that the sub-conscious personality, once it is recognised as exercising undue and confusing activities through the agency of a person, suggests to the person by some irresistible impulse that it is a great deal easier to trick the performance than to wait patiently for the genuine to manifest itself. It shows how utterly unreliable so-called mediums naturally become, and how they can never be trusted to achieve any genuine super- or ab-normal performances without the utmost vigilance on the part of investigators.

This is the only way I can explain this contradictory incident, which to many minds I admit

would wholly vitiate the value of the entire narrative as a scientific phenomenon. Yet, I give it for what it is worth and each must exercise his own philosophy in seeking to solve it to his satisfaction.

CHAPTER XI

SIR WILLIAM CROOKES' EXPERIENCES.

Undoubtedly, the most remarkable results ever achieved in the psychical laboratory, if I may so term it, were those secured by Professor William Crookes, through the alleged mediumship of Miss Florence Cooke, a girl of about fourteen, when he first began to experiment with her. Professor Crookes' experiments with D. D. Home, preceding those secured through Miss Cooke, were also marked with most startling and confusing results. The reason that one can refer to Professor Crookes' experiments in this line, without much apology as to the possibility of his having been duped or deceived, is that each stage of his labors was apparently safeguarded against all such possible miscarriages. He seems to have fortified himself with absolute scientific precaution against any conditions which might, even by insinuation, seem to admit of any deception. His methods were entirely different from those of Professor Zoellner, for instance, who experimented with Dr. Slade, in his famous tricks at slate writing and knotting a string which had no ends.

It has been quite satisfactorily proved that Professor Zoellner was completely overmastered by Slade, as the Professor was not skilled in legerdemain, was poor of sight, and did not in any manner protect himself against the wiles and makeshifts

of a professional trickster. The reader may satisfy himself on this point by referring to "Modern and Ancient Magic," by Evans, where Dr. Zoellner's performances with Slade are reviewed and Slade's methods exposed.

But Professor Crookes was a different sort of a man. He was a scientific experimenter, entering upon his investigations without prejudice, but determined to find the truth and nothing else. The results which he procured from D. D. Home, said to be the most wonderful and genuine "medium" of modern times, may be summarised as follows:—

1. The movement of heavy bodies with contact, but without mechanical exertion.
2. The phenomena of percussive and other allied sounds.
3. The alteration of weights and bodies.
4. Movements of heavy bodies when at a distance from the medium.
5. The rising of tables and chairs off the ground, without contact with any person.
6. The levitation of human beings.
7. Movement of various small articles without contact with any person.
8. Luminous appearances.
9. The appearance of hands, either self-luminous or visible by ordinary light.
10. The handling of hot coals without sensation of burning.
11. Phantom forms and faces.

That we may appreciate the exact scientific methods employed by Professor Crookes I will here

present a few of the experiments he made with Home.

He desired to learn whether Home possessed any force in his organism that would interfere with the force of gravitation, or exhibit different effects than mere mechanical motion.

He suspended at the end of a board thirty-six inches long a spring balance, furnished with an automatic register, firmly sustained by a tripod support. When the balance is at rest and the clock set going the result is a perfectly straight horizontal line. If the clock is stopped and the weight is placed on the end of the board, the result is a vertical line whose length depends on the weight applied. If, while the clock draws the plate along, the weight of the board varies, the result is a curved line, from which the tension can at any moment be calculated. This instrument he used to record the results that indicated an increase of gravitation on the objects experimented with. In order to make sure that no mechanical vibration was the cause of the variations of the register, but some recondite force which remained within the medium, Professor Crookes devised the scheme of placing a basin of water on the top of the apparatus, and noticing that if he plunged his hand into the water and agitated it no results were registered on the plate.

Therefore whatever registrations were recorded must have been caused by the unknown force residing in the medium.

The results proved to be surprising. When

Home, standing by the instrument, would plunge his hand in the water, he would wait till "the power" came, then instantly Crookes would start the clock, and the registrations would be made. In one experiment the down-pull of the force was equivalent to the pull of 5,000 grains. This apparatus was used many times by the professor not only with Home, but with others, and the result was always satisfactory, and seemed to demonstrate that no other force could produce similar registrations to those effected by the personal force of the medium.

The most startling and incredible of all the Home phenomena with Professor Crookes, however, were the levitations of the medium's body. Here is the description of that event by Professor Crookes himself, which, remembering his irreproachable reputation as a scientist, must, of course, be accepted as veritable and trustworthy:

"On three separate occasions I have seen Mr. Home raised completely from the floor of the room. Once, sitting in an easy chair, once kneeling on his chair, and once standing up. On each occasion I had full opportunity of watching the occurrence as it was taking place.

"There are at least a hundred recorded instances of Mr. Home's rising from the ground, in the presence of many separate persons, and I have heard from the lips of three witnesses to the most striking occurrences of this kind—the Earl of Dunraven, Lord Lindsey, and Captain C. Wynne—their own minute accounts of what took place. To reject the recorded evidence on this subject is to reject all

human testimony whatever; for no fact in sacred or profane history is supported by a stronger array of proofs."

Among the descriptions given of Home's levitations there is evidence as to his having floated straight out of an open window feet foremost, and sailing round the edge of the building to a closed window, some seven feet off, poised himself in mid-air while opening the window, then floated through head foremost and alighted quietly in a chair. This is the event of which Professor Crookes says, to disbelieve it, on the proof afforded, is to disbelieve all human testimony whatever.

Far more interesting and confusing results were obtained by the professor in the alleged materialisations of "Katie King" through the mediumship of Florence Cooke.

Professor Crookes' startling testimony as to his experiences with "Katie King" present the fact that he believed she materialised before him on many occasions, and chiefly through the mediumship of one Florence Cooke; that he by extraordinary caution made imposition or fraud impossible; and that he not only clearly saw the figure, handled it, measured it, and even photographed it; but that he made an unhampered comparison of the figure with that of the medium, to see if she was herself counterfeiting. He says: "I admit that the figure was startlingly life-like and real, and as far as I could see, in the somewhat dim light, the features resembled those of Miss Cooke," but as he heard the positive moan of the medium within the cabinet

at the very time when Katie was standing near him in the middle of the room, it thoroughly convinced him that the figure must have been genuine and not a counterfeit by the medium.

It seems a little strange, however, that Professor Crookes, who certainly must have heard of the art of ventriloquism, did not try to account for the moan on that theory, especially as the room was so dark he could not have seen the lips of the alleged spirit move.

However, he seems to have procured other evidence which was more satisfactory. He says:

"On March 12th, during the seance, after Katie had been walking among us and talking for some time, she retreated behind the curtain which separated my laboratory, where the company was sitting, from my library, which did temporary duty as a cabinet. In a minute she came to the curtain and called to me, saying, 'Come into the room and lift my medium's head up, she has slipped down.' Katie was then standing before me, clothed in her usual white robes and turban head-dress. I immediately walked into the library up to Miss Cooke, Katie stepping aside to let me pass. I found Miss Cooke had slipped partially off the sofa, and her head was hanging in a very awkward position. I lifted her off the sofa, and in doing so, had satisfactory evidence, in spite of the darkness, that Miss Cooke was not attired in the 'Katie' costume, and was in a deep trance. Not more than three seconds elapsed between my seeing the white-robed 'Katie' standing before me and my raising Miss Cooke onto the sofa from the position into which she had slipped."

If we are to admit that Professor Crookes' nor-

mal reason was not shattered, we are perhaps compelled to believe that he saw the two forms as distinct and separate.

Again, he says, "Katie" asked that all the lights be put out, then requested that she be given a lighted phosphorus lamp, which, taking in hand, she held up as she led the way into the cabinet inviting Crookes to follow her, which he did. There he saw distinctly the form of the medium lying in trance, when looking around for "Katie" she had vanished. Professor Crookes says that his eldest son, a lad of fourteen years, who was sitting just opposite the opening of the cabinet and could look into it, said that while Professor Crookes was within he saw the lamp floating around over the form of the medium, but he could not see any body holding it.

To further convince himself that the spirit was not the counterfeit of Miss Cooke, he made many experiments, and thus records the results. He says:

"Before concluding the article I wish to give some points of difference which I have observed between Miss Cooke and Katie. Katie's height varies; in my house I have seen her six inches taller than Miss Cooke. Last night, with bare feet, and not tip-toeing, she was four and one-half inches taller than Miss Cooke. Katie's neck was bare last night; the skin was perfectly smooth both to touch and sight; whilst on Miss Cooke's neck is a large blister, which under similar circumstances is distinctly visible and rough to the touch. Katie's ears are unpierced, whilst Miss Cooke habitually wears ear-rings. Katie's

complexion is very fair, while that of Miss Cooke is very dark. Katie's fingers are much longer than those of Miss Cooke, and her face is also larger."

If we are to accept Professor Crookes' tests he seems to have proved quite conclusively that Miss Cooke and the spirit were not identical. He was permitted to come close to her, to handle her and to take frequent pictures of her. Of one of these he says:

"One of the most interesting pictures is one in which I am standing by the side of Katie; she has her bare feet upon a particular part of the floor. Afterwards I dressed Miss Cooke like Katie, placed her and myself in precisely the same position, and we were photographed by the same camera, placed exactly as in the other experiment, and illuminated by the same light. When these two pictures are placed over each other, the two photographs of myself coincide exactly as regards stature, etc., but Katie is half a head taller than Miss Cooke, and looks a big woman in comparison with her. In the breadth of her face, in many of the pictures, she differs essentially in size from the medium, and the photographs show several other points of difference."

Again he says:

"Having seen so much of Katie recently when she has been illuminated by the electric light, I am able to add to the points of difference between her and her medium which I mentioned in a former article. . . . Several little marks on Miss Cooke's face are absent on Katie's. Miss Cooke's hair is so dark a brown as almost to appear black; a lock of Katie's which is now before me, and which she allowed me to cut from her luxuriant tresses, having first traced

it up to the scalp and satisfied myself that it actually grew there, is a rich golden auburn."

This series of experiments continued, off and on, through a period of about three years. Naturally the scientist was not wholly void of emotions, and some of his descriptions of the apparition seem to indicate almost a state of ecstatic admiration; nevertheless no unprejudiced student of his methods can deny that he apparently employed every conceivable precaution to demonstrate to his own satisfaction the genuineness of the figure.

CHAPTER XII

THE SUBTERRANEAN SELF

Before seeking what possible explanation the present known laws of nature may afford us in understanding these strange occurrences, there is one other form of phenomena to which we should refer. It will be remembered that we have already described the strange capacity which Reichenbach is said to have discovered in some of his subjects, enabling them to see bright flames bursting from objects which they viewed. This would indicate, if the phenomenon be genuine, that some sort of impalpable motion, or fluidic substance, surrounds an object, which under certain circumstances might be revealed to persons peculiarly gifted. This ordinarily indiscernible energy, which is thought to surround the surface of all bodies, sometimes manifests itself in motion energetic enough to be appreciated by the ordinary senses.

The papers have just reported a curious case of this sort, showing how the emanation, or whatever it may be, from human bodies, may sometimes assume a most powerful and dangerous character.

A lawyer in Worcester, Mass., is reported to have been much annoyed by the emission, from the ends of his fingers, of a sort of electric or magnetic energy of unwonted quality. A flame seems to shoot from them when they come in contact with certain articles. One day he undertook to unlock

his safe, and while he was turning on the combination a bright flame burst from his fingers and greatly shocked him. On another occasion, while he was combing his hair, the comb suddenly took fire, singeing his hair and burning away several of the celluloid teeth of the comb. These several examples illustrate how the physical organism seems to be possessed of certain forces which are not kindred with the usual forces in nature, and which seem to exert their energy through the agency of the human body.

In line with this phase of phenomena it would be in place here to mention a so-called fire-test, as an illustration of the phenomenon of anæsthesia during trance, which came under the careful inspection of the American Society for Psychical Research, and finally received the personal attention of Professor J. H. Hyslop, who reported it in full in the January issue, 1909, of the journal of that Society.

Briefly the conspicuous features of the case were as follows: A Mr. F. E. Fosket was reported, while in a trance, to be able to insert his fingers inside a lamp chimney, the wick being lighted, wash his hands with burning oil, and do strange feats with hot irons. After some correspondence Professor Hyslop took the alleged medium in charge, with this result: The sitting took place in abundant light for observation, though probably not enough for instantaneous photography. A clean crockery basin was brought in, filled with water from the town supply under Hyslop's careful in-

spection. Fosket went into a trance, washed his hands thoroughly with a cake of fresh Fairbank's soap. Hyslop assisted in washing the medium's hands again in chloroform, dried in cheesecloth, which was preserved for chemical inspection. After the washing Fosket sat at the table directing the procedure personally, although apparently in full trance. He lighted, one after the other, five or six sulphur matches, holding them between the thumb and the finger of the right hand in such a way that the tip was in contact with the inside of the end of his right hand little finger. In each case he held the match in that position for several seconds until the wooden part kindled. His arm was extended and his gaze riveted on the match. He seemed to experience no pain, but to be somewhat excited or fascinated by the light. After a match was kindled he held it under his fingers at various distances, from one-fourth inch to one and one-half inches, until it was consumed. He also held a lighted match in his mouth. The matches were carefully inspected, and to all appearances they looked like the common sort.

He then tilted back the lamp chimney, lighted the lamp, held his fingers in the flame for three or four seconds at a time, first one hand and then the other, until his fingers were blackened. This was repeated at least three times with each hand.

The lamp chimney was then fastened upright, and he turned the wick up as far as possible without its smoking. After again washing his hands, he grasped the lamp chimney by the narrowest

part, his hand covering the top two and one-half inches of the chimney, and held it first in one hand and then in the other, at arm's length for ten seconds in each hand. Then he inserted two fingers in the chimney and held the lamp up in this way for ten seconds in each hand.

Two ounces of alcohol were then poured into a clean pan. The alcohol was carefully examined. Fosket lighted it and dipped it up with his hands, passing them through the flames, and holding out one or both hands flaming with alcohol until the flames burned themselves out on his hands. The hair on his hands was burnt off short, and that on the wrists was burned and curled up. This last experiment occupied thirty or forty seconds, and the flame on his outstretched hands lasted for five or six periods of five or six seconds each. During the trance Fosket's pulse beat 130; ten minutes after he was out of the trance it lowered to 120; one-half hour, it was only 100.

Some of the conditions of the experiment are worth considering. Fosket had not done the fire test for several years, until two years before Hyslop heard of him. Before going into trance he always asks the help of his "controls;" during the test he tries to make himself passive; does not think of anything in particular; does not see or hear or feel anything unusual. Ordinarily when out of trance he is very sensitive to heat. Has often been burned when lighting matches, by the heat of the brimstone flying off; he cannot handle a hot cup of coffee. . . . He states that sometimes at

night on closing his eyes, he sees a panorama of human faces, colored naturally and life-like. He seems to have clairvoyant vision at times.

Professor Hyslop afterwards undertook to duplicate Fosket's experiments to learn whether they were the result of trickery or peculiar insensibility of the skin. Suffice it to say that he utterly failed to accomplish his purpose, as each experiment completely disappointed him. It might be well here to repeat Hyslop's personal observations on his results:

"It will be observed that I could not duplicate the experiments. . . . We are so inclined to judge incidents of this kind by our usual experiences in connection with hot surfaces. Our prompt reflexes under great heat make us forget that there are ways of producing illusions in regard to it, and unless the facts are carefully recorded and described we shall mistake their real character. We do not know what might have been possible under conditions which may not be detectible, but my own experience shows that it is not easy to withstand heat under the circumstances described. If Mr. F. has any secret way of protecting his skin it seems that he might have done the trick. But . . . no method of doing it was discovered. What his trance may have done, through auto-suggestion, to produce anaesthesia, whether of the heat nerves alone or of both the heat and tactile nerves, no one knows and can but conjecture. . . .

"A most interesting circumstance is the failure of the artificial protection for the skin, to do its alleged work. I obtained a prescription from 'Revelations of a Spirit Medium.' It is also copied in Mr. Hereward Carrington's book on 'The Phenomena of Spiritualism.' It was certainly a perfectly

worthless means of preventing the conduction of heat, as it appeared in my experiments, and one can but wonder whether those who are so ready to quote this book as an authority had ever thought to try the experiment."

After this quite detailed examination of the phenomena which are classified as occult, it remains for us now to attempt to interpret their nature and source.

One fact we have doubtless observed in studying the narratives thus far presented. That fact is, that the occult forces are always under the control and emanate from the so-called unconscious or subliminal mind. The normal mind seems to be wholly ignorant not only of their existence, but how they are to be controlled or foreseen. They are, in other words, elements or properties of the unknown self of each human being. To examine and understand this self we must enter into a more detailed study of its nature.

One fact is always evident in studying the patients in whom there are revealed the strange powers which we are now studying. That is, that the exhibition of such powers is usually in proportion to the separation between the conscious and unconscious selves. So long as the normal self can be kept at the helm, wide awake and watchful, there is no probability that the uncanny properties, which lie hidden in the depths of the soul, will divulge themselves. So long as the personal Will is supreme, all the buried corpses of a thousand past lives within us can never affright or halt us by any

apparition of their departed forms. We are always master of ourselves when we are actively conscious of our powers. But so soon as the conscious forces become passive or dormant, then the myriad underlives, for years or possibly for ages buried in our bodies, may suddenly walk out of their graves and disport themselves as unruly and impertinent ghosts.

Perhaps it was in this sense that Ibsen causes Mrs. Alving to mention "ghosts," when she sees the degenerate nature that cursed and killed her husband suddenly revived in her son, whom she supposed pure and spotless. In that play, at least, Ibsen discloses a wonderful psychological truth.

The unconscious self is always active inversely to the activity of the conscious self; and of course conversely the conscious self is active inversely to the unconscious self. The two planes of our being are discrete and separate. They act ordinarily as strangers one to another, and only under rare circumstances can they be made to merge in a common mutual consciousness. Nevertheless, there is such a perfect gradation between them that at times even in normal experience, they seem almost to touch. Thus, for instance, we can often watch ourselves slowly sink into sleep, and feel that inch by inch we are passing into oblivion. But just at the point of mergence, where the conscious sinks into the unconscious, we cease to be able to trace the descent. The next we know we are wide awake, but a large hiatus has been made in the continuity of our normal consciousness. When one is wide awake, fully

realising one's ordinary conditions, one's direct relation to the external world, one's unconscious nature is then held in such subjection, one is wholly oblivious of it. But when one's normal faculties are partially suppressed, or wholly paralysed, then the powers of the unconscious nature are aroused from their lethargy and called into active exercise; indeed, there seems to be an exact ratio of activity determinable between the two selves—the Conscious and the Unconscious. The deeper the sleep of the normal self, the more certain seem to be the awakenings of the subliminal centres of life. When a hypnotic subject is put to sleep, the phenomena which the operator will be able to exhibit through him will usually depend on the profundity of the sleep into which he can be enticed; if the sleep be but slight, the strong probability is that the subject will continue to be vaguely conscious of his normal life, and thus be able to exercise the resistance of his conscious will in opposing the demands of the operator. In such cases the experiment is almost always a partial or complete failure.

Dr. Boris Sidis in his work, "The Psychology of Suggestion," makes a very strong point of this fact. In numerous cases he proves that it was necessary to hypnotise a subject many times, usually not succeeding in such cases till the third hypnotisation; at which time only was the will of the subject sufficiently suppressed and his normal faculties submerged, to enable the operator to arouse the unconscious self and call it into active occupation. We shall see, in our final conclusion, that

this fact becomes a prominent issue, in determining the possibilities of the after life that natural law may vouchsafe the individual. For it intimates that the unconscious forces may be so deeply imbedded in the physical structure of the human system that only when the deeper nerve centres and the secret interior of the cells can be invaded, will the mysterious intelligence that there lies hidden respond to the summons of its captors.

As is well known, hypnotic subjects may be reduced to such states of sheer unconsciousness as to suffer their bodies to become mere instruments under the control not only of a directing human will, but, which is even more startling, of impressions made by an inert substance. Burq, it will be recalled, learned by accident that the sensitivity of subjects could be instantly affected by different metals he applied; sometimes copper, sometimes gold, or other metals, being applied to the arms of insensible patients, would restore their sensitivity, and enable them to respond to external stimuli. "He was thus able to restore sensitiveness to some who had been deprived of it for months. At the Salpetriere the female patients were employed at needle work and Burq gave them copper thimbles. Then he heard by chance that one of the patients who used a steel thimble had recovered her sensitivity. From that day metaloscopy was established, and Burq experimented with all the different metals, and found out their different action." 'A rather humorous experiment which Burq made and by it played a harmless joke on Charcot guided

this famous savant to his proudest achievements. Charcot had often pinched and punctured the flesh of an especially obtuse patient while making exhibitions of her insensibleness, in order to show how deep-seated the anæsthesia was. One day approaching her, accompanied by a physician to whom he was making demonstrations of his patients, he gave his anæsthetic subject a hard pinch, when to his amazement, she screamed aloud with pain. Charcot was dumbfounded; but on examining her he found that Burq had concealed a gold band on her person in a linen wrapper. This explained the mystery and incidentally divulged the secret that the nerve centres would respond to metallic substances to such a degree that alternately consciousness and unconsciousness could be generated in a patient. In other words, not only can the secret centres of the physical media of mental activity be penetrated by the action of one mind on another, but by the operation of inert substances. This would seem to show that the physical basis of the two planes of consciousness lies in different portions of the physical structure, and that when the means is found whereby one of those sections can be paralysed the other plane of consciousness is permitted to manifest its powers.

This fact was even more marvellously displayed by the use of colors and fluids in awakening different states of consciousness in patients. An hermetically sealed tube, containing a medicine unknown to the subject, placed in contact with the neck, produces effects varying according to the

substance employed. Alcohol produces a merry or a furious state of drunkenness, according to its distillation from corn or from wine; water generates hydrophobia; ipecac vomiting; oil of cherry-laurel, ecstasy and piety; nitro-benzole, convulsive shocks through the entire system; valerian, feline movements and crawling on all fours. That this result was not the effect of suggestion or the action of the operator's mind was in one case proved when the operator used a certain medicine from which he looked for a certain result, but on its application it produced a result which he had heretofore produced only by the use of another substance. On examining the sealed tube he found he had applied the wrong one, and the one he did apply contained the substance from which he should have derived the results which were actually produced.

Thus it seems the physical forces of the body, and the peculiar substance of which its different parts are composed, may be directly operated on by inert and unintelligible substances and cause the awakening of deep centres of consciousness beyond the control of the individual.

CHAPTER XIII

THE INVASION OF PERSONALITIES

The phenomena thus far reviewed enable us to understand that there exists a sub-realm within the human being, which constitutes the home of the subliminal nature, whose activities are ever dependent on the subsidence of our normal faculties, and which are brought into play when the inner centres of the brain and nerve cells are agitated by certain excitation. We have seen that the ancient registrations, made in the cell organs, may under certain conditions be again aroused, and that such arousal introduces into our lives the entire train of sub-conscious activities, which are commonly arrayed under the title of psychic phenomena. There seems to be an exact cleavage between the conscious and unconscious planes of our being, which find their biologic correlates in the different sections of the nerve centres. That portion of the cells, which constitutes their essential life, receives all the impressions made on the normal consciousness, and retains such impressions when they have passed out of the consciousness, and are supposed to have sunk into oblivion. But if for any reason these cell registrations are again agitated, as when the normal faculties are in subsidence and some strong suggestion or stimulation is exercised on them, then these registrations made on the deathless substance of the cell centres may once again

appear in active life within the faculties of the unconscious plane of mentation.

It is the aim of this treatise to examine the ultimate nature of the substance in which these registrations are made, and whether it be possessed of potentially permanent elements, so co-ordinated as to prophesy a potential continuity after the coarser elements of the body have dissolved in death.

That the psychic forces are capable of maintaining their residence in this substance in a sort of an independent manner, conquering the environment of the crude body and its limited senses, seems to be capable of proof; and whether this fact prophesies a potential existence after physical dissolution is the burden of our quest. Apparently psychological experiment shows that what we call the soul, or the co-ordinate aggregate of psychic units, is possessed of a bond of unbroken continuity uninterrupted by sleep, pause or other interference, always alert, always responsive to whatever demands nature may make upon it.

In order to make this apparent we must review another class of phenomena which only in recent years have come under the eye of circumspect scientists.

Even while I am writing this book the daily papers present us with a pathological case which vividly illustrates the unbroken persistence and continuity of the unconscious or subliminal self. The case was tried in court and every phase of it seems to be scientifically and legally verified.

A woman, Mrs. Hitchcock, had been declared

insane and compelled to remain in Matteawan for eighteen months, because a commission of alienists, consisting of Drs. Carlos Macdonald, Allan McLane Hamilton, and Frank W. Robertson, had so decided, on Nov. 20, 1907. On that day her husband was found dead in her apartments, 769 East 158th St., New York City. He had two bullet wounds in his body. His wife with four bullet wounds in her body, was found near him. On a table was a confession, bearing her name, reading, "I did this—the blame is mine."

Several months afterwards, while the woman was in the Tombs, the municipal prison, she was hypnotised by Dr. Ira Van Gieson,* a reputable and well-known alienist, to whom, while endormed, she told a story utterly contradictory of the theory constructed by the police from the circumstantial evidence, and which caused her imprisonment. This is the story she told:

"On the day of the shooting I got a steak and cooked it. When Bob, my husband, came home we had dinner. Bob had brought home with him a bag of apples, fifteen or sixteen. Bob said we were going together on a long journey, that he was in a hole and could not get out of it, that he had ruined our lives. Then he read a chapter in the Bible and wrote on a piece of paper and he made me sign it. Then he took the pistol. There was a pistol under the pillow and he shot me.

"He shot me, and I threw my arms over my head

*Dr. Ira Van Gieson was first head of the N. Y. State Pathological Institute, which laid the foundation for the official recognition of Psychotherapy. He conducted it successfully for several years till ousted by orthodox medical influence.

and ran into the dining room. He followed and shot at me a number of times and I fell on the floor in the dining room. We were on fire and he tried to put out the fire. I crawled to the bed on my hands and knees.

"Bob got morphine and held it to my face and made me take the contents of the bottle and said he was going to blow the top of my head off. Then he fired again and broke the window. Then he reloaded the gun and stood up in bed and shut his eyes and shot himself. I tried to grab the revolver and he fell down in bed, and the poor old dog we had there tried to bite the gun.

"Bob shot himself again and then pulled the sheet up over his face. This was about half-past eight o'clock. Then a dark man came in who spoke some good English and some broken English. The gun lay in the bed with the sheet over it, and I rolled over on the gun. Then the man said:—'Give me the cartridges.' Then he went away, and the next person I saw was a policeman. He said:—'What's the matter?' I told him I had done it, as Bob had told me to do so."

This revelation led the way to the discovery of new circumstantial evidence that seemed fully to prove the truth of the woman's hypnotic statement.

Mr. Talley, the examining lawyer, and Dr. Van Gieson had an investigation made at the flat building in which the shooting occurred. They found that the first person to enter the flat after the shooting was an Italian who spoke imperfect English, and that he was followed a few minutes later by a policeman. This discovery confirmed that part of Mrs. Hitchcock's statement concerned with the events directly after the shooting. They also

found that the dining room woodwork had burned and the window in the kitchen was broken, two facts that tally with the woman's account in hypnosis.

They found also the man who sold to Mr. Hitchcock the bag of apples on the day of the shooting, and they found the Bible from which Mrs. Hitchcock says her husband read to her.

Satisfied with these pieces of corroboration, they were strengthened in their belief that Mrs. Hitchcock did not kill her husband, but that he shot her and then killed himself. That he was capable of such an exploit seems probable, they say, from the proved fact that he smoked opium, used cocaine and morphine and drank whiskey to excess. Neighbors told the investigators that they had feared several times the man would kill his wife.

But there is one more strange incident connected with this suggestive case that shows how there is always a subliminal connection between the controlling and the submerged self, which sometimes discloses itself by the merest chance. While the woman in her normal moments could not recall the least iota of what she had revealed to the alienist in her hypnotic condition, which was the principle cause of her being declared insane, curiously enough a little thing happened to her one day that brought the whole story of the grewsome drama back to her sane and normal consciousness, from which it seemed to have been blotted out the instant of the murder when some unknown force disrupted her mental balance. She said: "Dr.

Sears, one of the house physicians, was talking to me one day when I suddenly thought of those apples my husband had brought home the day of the shooting. I remembered they were red, and it was from the color of those apples that I was able to reconstruct again in my sane moments the picture of the shooting. I seemed to remember every detail."

Here, we see, there was a whole drama of the most impressive type enacted in the presence of a woman who is herself tragically connected with it, becoming indeed doubly its victim, which has utterly ceased to become a part of her normal mind for a series of months, till suddenly some chance circumstance brings it all back again. But the tragic scene was there all the time, vivid, gruesome, horrific, yet dumb as the sphinx, silent as fate.

This proves that the co-called Unconscious Mind is always informed, alert, with a consciousness unbroken and continuous.

Not only may the normal consciousness be wholly suppressed (as in states of profound hypnosis or catalepsy), but our friend, the unconscious, or rather the secondary self, seems betimes to have been totally suspended, and a wholly different personality injected into the organism of the individual. For the sake of the reader who may not be informed on the subject, I shall narrate a few of the well known cases in order to call attention to the peculiar possession which seems to seize an individual so organised. Sometimes the seizure is of a half intelligent nature, as when the ordi-

nary consciousness of the individual is so interfered with that he is henceforth unable to pursue his normal activities and imagines that some force compels him to undertake impossible ventures till he finds himself in an insane asylum. It is quite common in these days to read in the papers of one of these hapless wanderers who suddenly leaves home, and when found, is wholly unable to explain his meanderings.

There is a famous case of this nature in the annals of the Psychical Society of France which is known as the case of Albert X., of whom Dr. Tissie of Bordeaux says: "He could not help starting off the moment the inclination seized him; an irresistible impulse took possession of him, and he would leave home, family, and business, and start off straight before him, walking at a quick pace, doing forty-four miles a day on foot, till he would at last be taken up as a vagrant and put in an asylum." To understand, however, how intense and irresistible this impulse was, it need but be known that the arrancy lasted for years, and he wandered all over Europe, even to the snows of Russia, and was arrested as a nihilist and ordered to be sent to Siberia. The history of this man's life affords as interesting a romance as was ever written, yet he was in all other respects most sane and intelligent, save in this *wanderlust*, which in his case became indeed the very mark of his insanity.

Here, however, no new personality is injected into his being; he still knows who he is and where he originally lived, and where his family and rela-

tions abide, but he cannot possibly account for his wanderings, nor does he try to. He simply enters on them as a matter of course, as a man would start off to his business office. Of course there must have been some vague form of reason in his mind, some far-off conception of something he must do and therefore is setting forth to accomplish it; yet this conception was never clear in his mind. All he knew was that he must "move on," and keep on forever without a rest. Possibly there was something congenital in this, and the conditions of his birth were such that deep within the "memory scars" of his brain cells was written the cause of his life's curse.

Sometimes the cause of such movements is not so difficult to find, although at the moment that the impulse seizes the individual, neither he nor any one else can discern it. Thus in a case which Mr. Myers cites in one of his books relating to the researches of the Psychical Research Society. Suddenly at breakfast time a man puts on his hat and flies out of the house. All wonder what has become of him, and no trace can be found. But he is flying on at an impetuous speed, knowing not at all where he is going, till he fetches up at his mother's home, miles away, only to find that she had expired at about the time the seizure came upon him.

The more remarkable cases, however, are those in which the apparent cause of such seizure is the introduction of a foreign personality into the organism of the subject, which comes to take absolute possession, and not only usurps both the conscious

and unconscious kingdoms, but sets up one of its own that wholly supplants the others.

The problem we shall be called upon to investigate in the phenomena we are now to present is whether the various personalities which may be obtruded on the normal personality are themselves distinct entities or the creations of subliminal states of mind, and whether there can be discovered a possible nexus between the various personations, which may be regarded as the permanent ego, or absolute self of the individual. Indeed, on the satisfactory solution of this problem, in my judgment, rests the entire framework of the proof of possible life hereafter.

I shall refer only to well known and properly authentic cases, which have become classic and historical. The first case of importance is that of Ansel Bourne, and reported in the seventh volume of the Proceedings of the Society for Psychical Research. Mr. Bourne was an itinerant preacher, operating in the New England States. He was sixty-one years of age, at the period to which we are referring. During his later manhood he had never manifested any unusual or abnormal traits of character or physical idiosyncracies. But some thirty years before he was stricken deaf, dumb and blind, when passionately declaring he would rather lose his speech and hearing than go to church. Recovering from this attack, however, no signs of it either indirectly or directly again appeared in his habits until the occurrence to which we are now to refer.

One day he went in a business-like manner to his bank, drew a large amount of money, ostensibly to pay off a mortgage, then suddenly disappeared from the field of his activities. No trace of him could be found during the eight weeks which followed. But about two weeks after the time of his disappearance, a certain elderly gentleman appeared upon the streets of Norristown, Pennsylvania, desirous of renting a store in which to conduct a small confectionery, stationery and notion business. He rented this store from a Mr. Earl, and the family of the latter gentleman occupied a portion of the building. The new rural acquisition laid in a comfortable and appropriate stock of goods and posting a sign, "A. J. Brown," on the front window, awaited customers. For eight weeks he procured a satisfactory patronage, and conducted himself as one to the manner born. He had apparently always been in this sort of business, and thoroughly understood all its requirements to make a success of it. His manner was that of a religious and moral gentleman, he went regularly to church, and soon acquired a goodly circle of friends who respected him.

One morning, however, this strange and amiable gentleman met with a most horrifying experience. He suddenly awoke about five o'clock, as if from a nightmare, and looking about him, was unable to recognise his surroundings. He was manifestly in a strange place, and could not explain his predicament. He could not imagine how he ever got into that bed. He feared to make the fact known,

lest he should be arrested as a thief, and soon a paroxysm of fear seized him. At last, screwing up his courage, he tiptoed to the door of Mr. Earl's apartments, and rapping gently on it, asked the gentleman if he would kindly give him the day of the month.

Mr. Earl replied it was the 14th of the month.

"The 14th of the month? How can that be; does time go backwards?"

"Oh, no," replied the landlord, "not at all."

"Well," gasped Mr. Brown, "what's the matter with me? Where am I?"

The landlord looked askance at him with suspicion, and replied, "You are at Norristown, Pa."

"How did I come here? I do not understand this. I never lived at Norristown, Pa."

The landlord assured him that he was there.

"Why, I thought this was the 17th of January."

"O, no," said the landlord, "it is the 14th of March!"

"Where, then, have I been all this time? It is all a blank to me. I do not know myself."

"Aren't you Mr. A. J. Brown?" asked the landlord, sheepishly.

"A. J. Brown? Why, no. I never heard of such a man. My name is Ansel Bourne."

The landlord instantly suspected him of insanity on this information. He thought it wise to telegraph to the place Mr. Bourne had given as his home, and received immediate assurance that Mr. Bourne had long been missing. The message informed him that his strange tenant had disappeared

on the 17th of January. His friends came for him and took him back to Providence; but he was utterly unable to give them any tidings of his wanderings during the eight weeks of his absence.

The case was turned over to the Psychical Research Society, and it occurred to Prof. James and Dr. Hodgson to put him into an hypnosis and see what would be divulged.

It is best perhaps to give the results in Dr. Hodgson's own words as reported in the Proceedings:

"He said (while in the hypnotic state) that his name was Albert J. Brown, that on Jan. 17th, 1887, he went from Providence to Pawtucket in a horse car, thence by train to Boston, and thence to New York, where he arrived at 9 p. m., and went to the Grand Union Hotel, registering as A. J. Brown. . . . He thought of taking a store in a small town, and after looking around at several places, . . . chose Norristown, about twenty miles from Philadelphia, where he started a little business of five cent goods, confectionery, stationery, etc.

"He stated that he was born in Newton, N. H., July 8th, 1826 (he was really born in New York City on that date) had passed through a great deal of trouble, losses of friends, property and wife, who died in 1881; three children living—but everything was confused prior to his finding himself on the horse car on the way to Pawtucket; he wanted to get away somewhere—he didn't know where—and have rest. He had six or seven hundred dollars with him when he went into the store. He lived very closely, boarded by himself, and did his own cooking. He went to church, also to prayer-meeting. At one of these meetings he spoke of a boy who had kneeled

down and prayed in the midst of the passengers on a steamboat from Albany to New York (an incident of which he was well aware in the Ansel Bourne personality).

"He had heard of the singular experience of Ansel Bourne, but he did not know whether he had ever heard of Ansel Bourne or not. He had been a professor of religion, belonged to the 'Christian' denomination, but 'back there' everything was mixed up. He used to keep store in Newton, New Hampshire, and was engaged in the lumber and trading business, [Ansel Bourne had at one time been a carpenter]; and had never previously dealt in the business he took up in Norristown. He kept the Norristown store six or eight weeks; how he got away from there was all confused; since then it has been a blank. The last thing he remembered about the store was going to bed Sunday night, March 13th, 1887. He went to the Methodist church in the morning, walked out in the afternoon, stayed in his room in the evening, and read a book. He did not 'feel anything out of the way.' Went to bed at eight o'clock, and remembered lying in bed, but nothing further."

Dr. Hodgson says that a careful examination discovered that all the facts related by Mr. Bourne under the hypnotic state were substantially correct.

It will be seen that the two personalities of Bourne and Brown were absolutely distinct in the two different states of the common mind occupying the same body. Dr. Hodgson says that "it was impossible to indicate the exact source of the creation of the singular 'Brown' personality." He remarks however, that possibly there was some form of epilepsy that possessed him as the result of his stroke of deaf,-dumb-and-blindness.

Professor Hyslop, in his work, "Psychical Research Borderland,"* remarking on this same case, says: "All efforts to fuse the two personalities into one failed, and no clear association of the two personalities could be suggested."

It seems to me that an examination of Dr. Hodgson's report would indicate the source of the "Brown" personality, and the possible psychological nexus between the two personalities. We need but to recall the creative possibilities of the subconscious powers, such as is demonstrated in dreams, when a second of time may be extended into years and a slight physical sensation will set up a series of experiences that aggregate into a dramatic romance, to see how from the few hints dropped in the hypnotic state of Mr. Bourne the whole life of the Brown personality might have been subliminally suggested.

The epileptic stroke is of course of the greatest importance, as we shall afterwards learn when examining the theory of distraction following what is known as "cell disaggregation." The normal association of the brain cells having once been so severely shocked out of their mutual association had of course retained a "memory scar" of the incident which might at any time re-awaken the abnormal association and cause a disarrangement of mental sequences. There is no testimony that anything happened to him on alighting from the horse car. It would be interesting to learn whether anything had occurred at that moment to cause physical shock.

*P. 272.

He had been in the carpenter business, so that the business world was not wholly foreign to his experience. In the hypnotic state this business is converted into the "lumber and trading business;" while in the "Brown" state it becomes a "notion" store. In the hypnotic state the idea is a mere thought; in the "Brown" state the idea is actually worked out in the practical life, as is often done by somnambulistic subjects.

As "Brown" he was as religious as he was as Bourne; showing that the memory of the Brown personality did not go back of the period of the epileptic stroke; else he would have shown an antagonism to the church, which was the immediate cause of the stroke. Being, as "Brown," religious, he recalls some of the religious experiences of Bourne (as the case of the boy praying among the passengers in the boat from Albany). The "Bourne" consciousness is evidently not altogether absent from the "Brown" personality, for he admits in hypnosis that he had a vague recollection of having heard of his (Bourne's) experience.

The slight points of connection between the two mentalities are thus indicated as the result of a hypnosis which may not have been deep enough, or worked out on sufficiently modern methods to have reached the profounder depths of Bourne's subliminal self. Thus we see in the hypnotic state he did give correctly the date of the birth of the Bourne personality, but for some inexplicable reason, gives the wrong place of birth. There may have been some experience not revealed in the hyp-

nosis or discovered in his life, which bore some relation to the town of Newton, N. H., which he incorrectly stated was his birth-place. Nothing was ascertained that would justify the presumption that he had ever been in that town.

There is not, however, as complete a cleavage between the two personalities occupying the body of Ansel Bourne as in the case of Mary Reynolds, to which attention should be given at this juncture of the discussion.

She was a daughter of one of the early Pennsylvania pioneers, who, falling asleep, it was found impossible to arouse. Twenty hours later, however, she awoke of her own accord, but instantly showed that a complete transformation had taken place in her nature. She was like a newborn child. Her memory had totally vanished, all her past experiences, her acquisitions of knowledge and education were obliterated. Her parents, brothers, sisters, relatives, friends, she knew no more. She had to be taught over again how to read, write, and even to talk, like a lisping baby. And with this marvellous mental transformation it was soon apparent there was also a complete change in her temperament and idiosyncracies. From having been dull, heavy and taciturn, she became cheerful, alert, and communicative. She continued to display this new type of character for some five weeks, when as suddenly as she had deserted her natural character she again assumed it, and thus continued her old gloomy self, for a few weeks, when she once more relapsed into her newly assumed personality,

and thus alternated between them, assuming now the primary and now the secondary phase, for some twenty years. Then she entered seemingly into a permanent assumption of the secondary personality, from which she never recovered, even to the day of her decease, which was a full quarter century after.

Naturally the question arises, where did the primary character—her first, natural, hereditary self—go to? Had it wholly vanished into the invisible, or did it still somewhere abide in physical form? Insomuch as all mental organisms must be incarnated in material frames in order to possess a medium of expression, it follows that both these personalities must have had within the one organism of Mary Reynolds a physical framework through which they revealed their presence. When, therefore, the primary personality disappeared, did it wholly vanish, or did it remain concealed in the same body, but so deeply imbedded in the material substance as to find expression impossible?

The latter conclusion seems to be the one that scientific research compels us to accept. We saw in the case of Ansel Bourne, that even though the primary personality for a time disappeared, and then returned, it was not lost, because it found a physical medium through which to manifest its presence. In his case, the secondary personality, A. J. Brown, wholly disappeared; but not yet wholly; for, when his body was subjected to hypnotism, vague and suggestive intimations of the restoration of the secondary personality were ap-

parent. Indeed, we shall learn that each personality which an organism assumes, actually imprints its presence on the cellular tissues of the body, and remains there; if, afterwards, circumstances occur which disturb the equilibrium of the organism, the personality may be again awakened and express itself through the same physical frame-work. In short, a complete mental, spiritual and moral structure, other than the one with which each of us is born, may, if circumstances permit, be generated within us, and become such a fixed and actual constituent of our beings, as completely to usurp the office of the primary self.

It must be, therefore, that these new mental and spiritual structures are impressed upon the invisible centres of the cell substance, to which our attention has heretofore been called, and remain there until some unaccustomed power calls them forth as if by magic. We have a clear illustration of this hypothesis in the experiments of Prof. Janet, with one of his famous subjects, "Louise," by the so-called method of "distraction."

CHAPTER XIV

THE LAW OF PERSONAL INTEGRITY

In the experiments which Professor Janet undertook with this very plastic subject, Louise, we shall see how he calls up a distinct personality merely by giving it a fictitious name, wherewith at once it assumes existence and builds up a personal history around the name.

From this experiment it would seem that we have within us the possibilities of an infinite number of personalities which can be conjured by the imagination and made as permanent as the stability of the imaginary constituents. This phase of the labors of the sub-conscious self is, of course, akin to its work in the dream states of sleep. But if the imagination has the power to summon these personalities, their constituents must have pre-existed in the organism of the subject. The imagination seems to possess the magic power of overthrowing the associated constituents of the normal personality and having disturbed its equilibrium to summon the latent constituents of a potential personality, subject to the call and command of a stronger will.

Professor Janet, having entered into direct communication with the secondary personality of Louise, says:

“Do you hear me?”

Ans.—“No.”

“But in order to answer one must hear?”

"Certainly."

"Then how do you manage?"

"I do not know."

"There must be somebody who hears me."

"Yes."

"Who is it?"

"Not Louise."

"Oh, some one else? *Shall we call her Blanche?*"

"Yes, Blanche."

"Well, then, Blanche, do you hear me?"

"Yes."

This name, however, had soon to be given up *on account of disagreeable associations in the mind of Louise*, and another name substituted. When Louise was shown the paper with the name of Blanche which *she had written, she was angry and tried to tear it up.*

Janet: "What name will you have?"

Answer: "No name."

"You must; it will be more convenient."

"Well, then, *Adrienne.*"

Here a strange situation was introduced. It was proved that Adrienne knew of things of which Louise was wholly unconscious. A special terror of Louise, which was evidenced in wild exclamations during her hysterical fits, was somehow connected with hidden men. She could not, however, recollect the incident. *But Adrienne when questioned, was able to describe the details.*

Louise was thrown into catalepsy; then Janet clinched her left hand (she began at once to strike out), put a pencil in her right hand, and said: "Adrienne, what are you doing?"

The left hand continued to strike, and the face to look rage, while the right hand wrote: "I am furious."

"With whom?"

"With F."

"Why?"

"I do not know, but I am very angry."

Janet then unclinked the subject's hand and put it gently to his lips. It began to blow kisses and the face smiled.

"Adrienne, are you still angry?"

"No; that is over."

"And now?"

"O, I am so happy!"

"And Louise?"

"She knows nothing; she is asleep."

In this experiment we see how two distinct personalities were conjured, whose existence depends wholly on the imagination of the subject, and the suggestion of the operator acting on the imagination. But the personality once summoned may go far beyond the active or conscious suggestions of the operator and build up voluntary environment and history of its own. Something within the subject, certain scattered ingredients, are called into association, and once united, organise a momentary individual which thinks, acts and exists as though it had always been a fact. It would seem as though the will acting on the plastic elements within the mind of the subject organises them into a temporary arrangement which constitutes a personality, and for the time being acts as if it were permanent and had always occupied the body which it uses.

Says Binet, referring to this experiment:

"It should be carefully noted that if the personality of 'Adrienne' could be created, it is because the suggestion met a psychological possibility; in other words, there were disaggregated phenomena existing there apart from the normal consciousness of the subject. This disaggregation prepared the unconscious person, and in order to . . . the collection and crystalisation of these scattered elements very little was needed."*

In short, the organism already registered, as the result of previous experiences, either conscious or unconscious, personal or hereditary, the separate elements of the potential personality finally summoned. Somewhere within the organism these elements or psychic units were registered. It is the contention of this treatise that these registrations are within the invisible centres of the physiological cell (the primary life units), which is the norm and original of the general or organised life of the individual. These registrations, being impressed on an indestructible substance, which itself constitutes the totality of physical life within any vital organism, if this substance can survive the dissolution of the outer frame, as we have endeavored to show in "Modern Light on Immortality," the surviving cell-centres, or bioplasts, may continue the life energies and become the invisible frame work of the mental constituents of the surviving soul.

Within this surviving substance is written the total mental experience of the life pursued by the

*"Alteration of Personalities," p. 147.

visible and mortal body, whose potential extension into a future personality beyond the grave is dependent on the force of the primary ego or the prevailing will.

The point to be emphasised is that a single personality can be maintained only so long as the personal will is strong enough to hold its elements together. In hysterical and abnormal subjects the will is so weakened that the psychological elements can be scattered by the introduction of the stronger will of the operator, the normal personality overthrown and a foreign personality allowed to usurp its seat of power. From this we are forced to draw the hint that if the soul survive death, its nature and continuity will depend wholly on the strength of the personal will and the tenacity of the elements of the personal consciousness. What we call consciousness, in short, becomes simply the close cementation of the constituent elements of personal experience; and in proportion to the ability of the mind to concentrate alone on this segregated or self-circumscribed region of experience the individuality of a person is possible. Hysterical and abnormal subjects prove that natural personalities and states of consciousness may be so scattered as to wholly lose all sense of integrity. Should souls, then, pass beyond the grave with no stronger self-centred consciousness than such subjects, it is easily seen that the personality they might there organise would be wholly dependent on what environment and suggestive conditions prevailed.

In the case of Mary Reynolds, who assumed

alternate personalities and passed from this life in the secondary state, which was not the one she normally inherited or was born into, it would be impossible to know whether her "soul" would assume this secondary character or the primary character which was her earthly birthright, or a wholly different personality which a totally new environment might suggest or conjure. In later chapters we shall elaborate this theme.

It was at one time supposed that the human being, once created, possessed an ego of constant and indissoluble nature. The old psychology was insistent on this point. It was not conceivable to the propounders of the old school that consciousness was divisible or capable of dissipation. The ego was integral, constant and eternal. While it was apparently devoid of consciousness during sleep, the fact that dreams could be impressed upon the consciousness, they argued, proved that even in sleep the ego was not susceptible of distraction. Thomas Reid in his "Essays on the Intellectual Powers of Man," says:

"My personal identity implies the continued existence of that indivisible thing I call myself. Whatever this self may be, it is something which thinks, and deliberates and resolves and suffers—I am not thought, I am not action, I am not feeling; I am something that thinks and acts and suffers. My thoughts and actions and feelings change every moment; they have no continued, but a successive existence; but that self, or I, to which they belong, is permanent, and has the same relation to all the succeeding thoughts, actions and feelings which I call

mine. . . . The identity of person is a perfect identity; wherever it is real it admits of no degrees; and it is impossible that a person should be in part the same and in part different, because a person is a monad and is not divisible into parts. Identity when applied to persons, has no ambiguity, and admits not of degrees, or of more or less. It is the foundation of all rights and obligations, and of all accountableness; and the notion of it is fixed and precise."

In this statement we have all the dogmatic precision and exaggeration of the old school of thinking which depended on mere assumption, but knew nothing of experimental search after knowledge. Science has now proved that every feature of the above argument is as contrary to the truth as error necessarily must be. It is now learned that the so-called ego is not only not indivisible, identical, fixed and constant, but that it is susceptible of an infinite number of degrees and phases, no less contradictory than they are complex, and logically destroying the foundations of the old conception of accountableness and ethical obligation. For, the clinical laboratory has now proved to us that under certain conditions certain persons may be so operated on that not only is their individual identity destroyed, but they may be forced to assume a number of other personalities, none of which bears any logical or actual relation to the original personality or identity of one's birth-right being.

Nevertheless, in normally developed human beings there exists a permanent self-consciousness or personal ego. The fact, however, was for ages over-

looked by both scientists and metaphysicians that this personal ego is a product of evolution, consisting of an infinite series of states of momentary consciousness, held together by the framework of a normal organism, whose equilibrium once disturbed causes a distraction or dissipation of the normally constant ego. *Therefore the problem of identity both here and in a possible hereafter will depend wholly on the capacity of the so-called ego to maintain its permanent synthetic character.* So long as there is tenacity of memory, recognitiveness and the ability of merging one's infinite series of momentary incidents of consciousness in a constant self-consciousness, so long may the self or personal ego be continued. But on the interruption or cessation of such capacity the identical self may be dissipated.

We are called on to consider the fact that within or behind the waking self or daily self-consciousness, there exists a sub-waking or latent self, wholly distinguishable in character, capacity and *modus vivendi*, from the waking self, whose absolute separation from the latter self may at any time occur, and which may rise to the surface and usurp the place of the normal or supra-liminal self. These two or more selves flow on in parallel planes within the human being, and while they blend and merge betimes, still they never so become one as to constitute a single and inseparable being. One author (Sidis) compares them to the ocean and the Gulf stream. The waters of the Gulf stream (the sub-waking or secondary self) affect a large area of the

ocean beyond its channel, yet the stream is never dissolved in or absorbed by the ocean. And the ocean makes inroads into the stream, yet the ocean cannot be absorbed by the warm waters that flow from the Gulf. So the secondary self may and does continually affect the primary or normal self, by memories and intimations, yet is never absolutely incorporated within it, while the primary self also commands and directs the secondary self, yet is at no time absolutely absorbed or captured by it.

What we call the consciousness of the ego, or the self consciousness, is then but the capacity of the primary self to command certain experiences and retain their momentary or tentative memory. *But a large residuum of this consciousness sinks into the secondary self and becomes its self-consciousness*, which is not to be confused with the self consciousness of the normal self. When the two selves are so related that the primary self remains in complete command of the situation, we have what we call normal self-consciousness. When the primary self loses its superintendency, and the sunken consciousness rises into command, we have secondary self consciousness. Now the whole problem with the normal personality consists in its power to maintain its supremacy over all inferior self-conscious activities. Modern experimental psychology has proved that in almost all human beings this supremacy can easily be disturbed if not dethroned, and that even the healthiest and most regular human beings are not free from this intrusion.

"The two selves in normal man are so co-ordi-

nated that they blend into one. For all practical purposes a unity, the conscious individual is still a duality. The self-conscious personality, although apparently blending with the sub-waking self, is still not of the latter. The life of the waking self-consciousness flows within the larger life of the sub-waking self like a warm, equatorial current within the cold bosom of the ocean. The swiftly coursing current and the deep ocean seem to form one body, but they really do not. The one is the bed in which the other circulates. . . . Now all these experiments tend to prove the presence within us of a secondary sub-waking self that perceives things which the primary waking self is unable to get at. The experiments indicate the interrelation of the two selves. They show that messages are sent up by the secondary self to the primary self. . . . The facts and experiments discussed above seem to point, by mere force of cumulative evidence, to the presence within us of a secondary, reflex, sub-waking consciousness,—the highway of suggestion—and also to the interrelation and communication between the two selves”*

Modern experimental psychology teaches us that the limited and circumscribed self of our normal consciousness lies within the vast and unbounded region of the supernormal psychic environment. It is as it were a small island in a vast sea of potential consciousness, which may every now and then be invaded by the onswEEPing waves of sub-conscious activity. At times indeed the little island of our conscious selves may be wholly submerged by the tidal wave of the under self, completely burying us

*“Psychology of Suggestion,” Sidis, pp. 162, 172, 179.

from self-recognition and for the time being wholly annihilating our normal psychic perceptions. The island of the waking self may be buried for days, weeks, months, years, yea, as in the case of Mary Reynolds, may never again in this life emerge from beneath the whelming waters of the sub-waking sea of life; or there may be frequent subsidings of the waters, and the island of the normal self may again and again appear above the surface, again and again to be submerged, swaying alternately between normal and supernormal consciousness till, as in Molly Fancher's case, it becomes difficult to recognise the self which is the most permanent and may be regarded as the original or primal being.

In such lives manifestly the bond that holds the psychic autonomies together has become weak and unresponsive to a common will, there is no sufficient bond of unity, insubordination prevails, and the constructive and potentially sovereign self is constantly overpowered by irresistible insurgents. The one supreme will has, for the time, been compelled to abdicate. The numerous wills of the inferior autonomies assert their power; and if sufficiently enforced, some minor claimant succeeds to the throne and temporarily subjugates not only all the inferior conflicting kingdoms, but even the supreme sovereign throne itself. As illustrations of this law we might here refer to a few famous cases.

A rare and remarkable case of alternating personalities was discovered by Professor Janet and Dr. Gilbert of Havre. "Mme. B." was a stolid, substantial, honest French peasant, about forty

CHAPTER XV

THE SLEEPLESS SELF

"A somnambulist forgets, when he awakes from being hypnotised, all that he does or says, but can be made to recall or repeat all by the simple assertion of the hypnotist that he can do so, and this without again falling asleep."

These are the words of Bernstein, the famous French hypnotist and psychologist. Thus we see that while the conscious state may be wholly submerged beneath the sub-conscious, in which state the conscious personality is unaware of what it says and does, none the less the sub-conscious may be called into the plane of the conscious and be forced to reveal to it all its secrets and workings. An artificial bridge, so to speak, may be built between the two selves or states by the operator, so that the mind of the individual may travel between them, and thus discover the inward activities of each. There exists a common element between the two seemingly diverse and separate selves, and that common element is the material which must be employed in the attempt to merge them. The common element is the mind or the psychic substance which is acted upon by the personalities established within the organism. If each personality actually possessed a separate and incommunicable mind of its own, intercommunication between the two selves were an impossibility. Formerly it was supposed

such intercommunication could not be established. And it was then surmised by some writers that there were separate minds, one a subjective and the other an objective mind, within the same organism. Man was possessed of his own soul, but might be obsessed by a foreign or supra mundane spirit. We now understand that the same mind-element exists within both personalities, the normal and supernormal, and because of this psychic element intercommunication may be established.

“The separation of the two consciousnesses does not interrupt all communication between them. The association of ideas, of images, perceptions, and movements—that is, of all that pertains to the sphere of the lower psychology—is preserved nearly intact; and, hence, an idea in the first consciousness provokes a movement in the second, and, inversely, a sensation perceived by the second consciousness can awaken an idea in the first consciousness.”*

So long as the subconscious personality can be captured, we may say, by the conscious, and forced to divulge its secrets, the integrity and normal permanence of the ego can be established. In all such cases, which are the majority in the present experience of the race, the individual may be said to be permanent, indissoluble, intact. But if the sub-self commands and refuses to surrender its autonomy to the higher authority of the normal self, then the dissolution of the psychic elements which constitute the self-consciousness of the individual takes place, *and the logical issue of that life will depend*

*Binet, on the Double Consciousness, p. 29.

on the capacity of the normal self-consciousness to restore and establish its supreme autonomy. Within each of us there is a possible variety of personalities; yet as we are normally constituted we may control and subject those potential personalities to our requirements. The fact that we can do so and thus prove our individual integrity establishes our *sui-generis* individuality.

The activities of the unconscious centres, however, are never silenced. The Unconscious is always awake, always active, and though it seems to be a paradox we may say it is always *conscious*; for, at any moment, that which transpires within the Unconscious, and of which the normal mind has no knowledge, may be restored to the waking consciousness, so that one may look, so to speak, in a mirror and see the reflection of one's other self, of whose presence one had not before been aware.

Because of the difficulty of explaining dual or multiple personalities, as we have before remarked, the experiences above alluded to have been questioned by one school of psychologists, who wholly reject the class of phenomena now recognised as the operations of the subliminal self, regarding them as mere data of the imagination. There seems to me to be no insoluble problem involved, however, in the possibility of one individual being possessed of a variety of personalities, which may manifest themselves at different times. We need but recall that consciousness consists of an infinite number of experiences, that each momentary experience is but a moving picture in the mind,—that is, a passing

state of consciousness,—and that so long as we are limited to this temporary movement of consciousness our whole personality consists, at that single moment, but of that one experience. A number of such experiences, once associated, create between themselves a connecting link, and when such associations are continued they constitute, during their duration, a constant or fixed personality. We can conceive of two such experiences constituting the entire subject matter of a single personality. Perhaps at one time in unicellular organisms such a primitive form of consciousness existed. When such experiences increase into the millions and billions, and, for a certain period of time, assume an association or mutual relationship, they constitute, so long as they cling together, the subject matter of a single personality or an individual. At any moment we may pause and be conscious of a series of such experiences. We know, however, that there have also transpired within our beings an infinite series of other experiences, which, though awakening momentary consciousness, have sunk beyond recall. Nevertheless, though lost to immediate realisation, we now know they are physiologically registered.

Hence it is logically conceivable that certain groups of experience which have relapsed into oblivion might, by the law of the association of ideas, be momentarily reunited within the plane of conscious activity, and thus be restored to our realisation, to the exclusion of all other groups or colonies. Indeed, we may see the operation of this law in the

experience of dreams. A momentary circumstance of yesterday, or last week, or last year, may suddenly re-enter the realm of consciousness, in the dream life, rising abruptly from the long buried depths of the sub-realms of our being, when instantly we associate with the experience an entire series of cognate possibilities, out of which the mind erects a most absorbing drama to the amusement and delight of our sleep-locked souls. However absurd and impossible such associations and theatrical figures may be, in point of fact, they seem absolutely real to the dream-self, which, indeed, assumes a personality of such exaggerated characteristics as to be utterly impossible of assumption in the normal life of the mind.

That dream life is, however, the actual experience of the consciousness of the dream-personality. The drama is as effective and logical to the dream-personality* as is the actual drama of life in the normal experience of the soul. We are as completely lost to the normal self-consciousness in the dream consciousness of sleep as is the somnambulist while under the control of the hypnotic operator. We may truly say that we experience each night, if we

*"Max Dessoir tells us of a case in which a person took up his dream on a second night where he had left it off on the first. Here, then, the dream consciousness tended to form a new chain of memories. The same author puts the following case of Macario's with the last: A girl who was outraged during an attack of spontaneous somnambulism knew nothing about it when she awoke, and only told her mother of what had happened in her next attack.

"These cases in morbid and in dream conditions show that two consciousnesses follow one another." (Moll: "Hypnotism," p. 261.)

are aware of our dreams, a whole series of variable and distinct personalities, each of which is unrelated to and unaware of the other. In truth we are susceptible not only of a dual personality but of infinite personalities, insomuch as our submerged experiences may assume an infinite number and variety of associations.

I have thus far been referring to the psychological elements which enter into the formation of temporary or incidental personalities. Dr. Boris Sidis, in his "Psychology of Suggestion,"* presents the physiological analysis and explanation of these phenomena, which I think it would prove profitable to reproduce here. He says:

"The mental process of association and aggregation of psychic contents in the synthesis of moment-consciousness, and the including of the moment consciousness in synthesis of higher and higher unities, can be expressed in physiological terms of cellular activity."

He then outlines the nerve system, reminding us that the cells are not anatomically connected, and associate only functionally through physiological contact, forming into groups, systems, communities, clusters, constellations, in the respective order traced. He practically proves that each cell is organised into an individual and unique life, with its own consciousness, memory, etc., and that the multiplicity of cells associate into the so-called systems, constellations, etc., *according to the duration of the psychic experience whose impressions they receive.*

*Pp. 208-212.

"The simpler, the less complicated, a group of cells is," he says, "and the longer and more frequently their fine processes come in contact, the greater is the tendency of that group to form permanent relations; we may, therefore, say that the organisation of a system or constellation of cells is in proportion to the duration and frequency of their associative activity."

He then proceeds to show how these time aggregates of psychic elements, expressed in cellular associations, *may be dissipated into their several primary conditions*, by the influence of psychic stimuli playing upon them.

"Association fibres combining the highest constellations are the first to give way; they are the latest to arrive in the course of psycho-physical evolution, they are the most unstable, the least organised, and are also the first to succumb to the process of dissolution."

Here we have presented the physiological reason for the rapid dissolution of dream forms, apparitions, and the visions of day reveries. It also explains how numerous personalities may grow up in the organisation of a single life, as in the illustrations already noted in this chapter.

If, then, these psychic elements are so volatile and unstable, and their physical correlates are no more stable, it may be asked by what law do we maintain a persistent personality and self-consciousness in the midst of the countless changing experiences of life. The reason is that by the law of association we carry forward in our persistent self-realisation a *fixed train* of experiences, all of which

are logically the cognates of our normal modes of thinking. When we fall into abnormal or super-normal conditions, such as in dreams, reveries, fevers, trance and somnambulistic states, we attract a wholly unusual and extraordinary train of experiences, which by force of the imagination may be magnified into altogether impossible or super-normal conditions of consciousness. These, however, being attached to our temporarily constructed consciousness compose an organised memory and super-normal personality.

As a magnet will draw the minute particles of steel filings that lie within its field of force toward its opposite poles, so by the law of association the mind may cause to be attracted to either an ordinary or extraordinary experience a whole series of mental states, which, assembled in this momentary gathering, may constitute the basis for a wholly new state of consciousness and organise an unknown and foreign personality.

Read in the light of this physiological and psychological law, we are permitted to understand the ultra puzzling phenomenon of Molly Fancher, for instance, who, it is said, assumes four different so-called personalities, that control her body at different times and for a certain duration of months or years, scarcely ever changing her bed-ridden position, but acting out all her different characters spontaneously and with accurate and unbroken continuity. She may have assumed one personality for a term of months, then, when merging into one of the other personalities, she will at once resume the

speech or occupation which was broken off when the alternate personality seized her. There seems to be no hiatus in any one of her quadruple characterisations; but each one is perfectly organised, and when its time for expression arrives reveals itself with as much certainty as one's normal personality does in the commonplaces of life.

While in one state of consciousness, which constitutes the organisation of a distinct personality, something enters her mind which calls up a fixed train of experiences that are logically associated with the temporary mental state. While she remains in this mental condition, naturally, her attraction is diverted from the special mode of consciousness which she had been formally assuming, and enters the new state, because the train of ideas which is thus conjured is logically associated for the time being with the conception which now possesses her. In the same manner, in our dreams, we do not know ourselves to be what we are in common life, but conceive ourselves to be endowed with unusual qualities or powers, sometimes imagining that we have become other people, assuming their states of consciousness, and characterised even by their capacities and qualifications.

Now such diversity of personalities might, for the moment, seem to indicate the obliteration of the soul, or the primary ego; or that what we call the soul is but the psychical correlate of physical activities. That is, it might from the illustrations above given, be supposed that what we call the soul has no necessary continuity, but consists merely of the tem-

porary aggregates of psychical activities aroused by physical stimuli. Many, indeed, do draw such a deduction from the experiences above noted. They seem to discover in the facts the absence of any necessary unity or continuity in the consciousness, and assume that when the physical stimulations finally cease, necessarily all psychical activity must also cease. If we take merely a surface view of the facts there would seem to be some justification for this deduction. But in a moment I shall show where the error of this conclusion appears to me to lie. It is indeed to be remembered that in case of fevers or any other pathological condition of the body, the mind seems to be but a reflex of the intense cellular activities which agitate the organism; the thoughts which are then conjured seem to be but the resultants of the physical friction set up within the tissues and nerves of the body.

On this theory, it would seem, Ribot rests his celebrated dictum that there are innumerable nerve activities which do not always have a psychical complement; i. e., that the nerves are often compelled to experience certain stimulations which are not convertible into sensations or mental states of consciousness. Recent demonstrations, however, in psychical experiments have entirely disproved the validity of Ribot's deductions and those of the entire materialistic school. Ribot was not yet informed of the fact that the very reflexes themselves are recorded in the psychical apparatus as well as in the physical organism, and that under the proper conditions they may be forced into the region of

the normal consciousness. Moll* shows clearly that in cases of somnambulism, when certain contractions are caused in the muscles, it is not merely a reflex which takes place in the muscular response to the nervous stimulation, but a direct response to a mental stimulation or suggestion. Of course there can be no mental response to any stimuli without the presence of some degree of consciousness. He more fully explains this law on p. 184, where he says:

"From all the phenomena hitherto discussed it must have been gathered that there can be no question of the loss of consciousness in hypnosis. Of course I mean loss of consciousness as it is understood in psychology. We have seen that the subject in hypnosis remembers the events of earlier hypnoses. Consequently impressions were received into the consciousness in these earlier hypnoses. We cannot, therefore, talk of loss of consciousness, because loss of memory exists after the awakening (Forel), apart from the fact that suggestion in hypnosis will prevent the loss of memory. This temporary loss of memory is an every-day event, and we could not conclude a loss of consciousness from it in ordinary life.

"I will not speak of the daily mechanical actions we perform without attention and forget directly. I will take quite another case, in which we act with full consciousness and attention. I will choose an example out of my own experience, a thing which we have doubtless observed in ourselves. I take a book and put it in a particular place, so that I may find it when I want it. At length I want it, but I cannot remember where I put it. I think in vain.

*"Hypnotism," p. 96.

Only when I replace myself in imagination at the moment when I put it away, (a method which every one knows) do I remember where it is. And yet, in spite of temporary loss of memory, I did not put the book away in a state of loss of consciousness; it was rather that I was at the moment in another state of consciousness. This is, in many respects, analogous to hypnosis; the events are remembered only when the subject is again in the same state of consciousness, i. e., in a new hypnosis. Thus, in all these cases we have to do not with an unconscious state, since all impressions remain in memory."

The state of consciousness to which the author here refers is, of course, what we have agreed to understand as the subliminal, which is beneath the level of the normal consciousness, and is susceptible of recall.

In fact modern books on Hypnotism are replete with proofs of the existence of what we might call static consciousness, which is often misinterpreted as the absence of consciousness, or momentary soul annihilation.

This, in fact, was the incidental error into which Professor Tyndal fell, who was wholly ignorant of the field of psychology in which the now famous experiments and discoveries have been made. Tyndal, the reader will recall, in his celebrated Belfast address, undertook to prove that there was absolutely no scientific proof of the soul's existence, or a possibility of its ever being so demonstrated. He was indeed sufficiently psychological to illustrate his theory by a personal experience which seemed to disintegrate his individual consciousness. He

narrates how he had accidentally been subjected to the concussion of a large number of electrical volts, sufficient under different conditions to have killed him. The result was a state of utter unconsciousness, in which he remained for several days. When he returned to himself he found that a complete break in his memory or mental consciousness had occurred. What had taken place in all those days he had apparently no way of recalling, and he was satisfied that his soul, if he had any, could not in any way have been cognisant of what had transpired during that interval. In short, his soul could not be continuous, or unbroken, for here had entered a hiatus—a hole, so to speak, which nothing could close up. “Where, then,” he exclaimed triumphantly, “where was I—my soul—during this long period of oblivion?”

In Tyndal’s day no recognised scientific principle could be utilised as an answer to his pertinent objection to the old metaphysical proof of the soul’s existence. Indeed, there was no answer; his victory was complete, and all the mumblings of the discomfited clergy could not shatter the splendid structure of his logic.

But, strange to say, though theology and metaphysics were both overcome by Tyndal’s argument, it remained for science itself, Tyndal’s own weapon, to come to the rescue and demonstrate his fallacy. Professor Tyndal thrived before the science of hypnotism was recognised as respectable in the medical and scientific world. At that day it was laughed at, and no decent physicist proved himself martyr enough to be willing to be ridiculed.

Now, however, we have sufficient proof that during the state of alleged unconsciousness into which the concussion had thrown Tyndal there was indeed no absolute unconsciousness whatever; there was merely a state of suspended or sunken consciousness; the registrations within the physical organism of the stimuli which affected it, having entered into such profound recesses of the body as not to be susceptible of recall until they become controlled by another mind of proper training, when, presto, change! they would at once reappear.

So important is this innovating scientific fact that we shall devote the next chapter to its further elucidation.

CHAPTER XVI

THE BOND OF PSYCHIC UNITY

Does the disintegration of the personality ultimately destroy the self-conserving power of the individual? That is, once granted that what we call ourselves may, under peculiar conditions, be dissipated into several selves, each of which is either wholly or but partially acquainted with the other, is, then, necessarily the primal self dissolved beyond reconstruction? Is it possible that in this life the "I" may finally pass beyond self recognition, and be dissipated into several "I's," which may remain permanently dissevered so that the original "I" shall never again be restored?

The mind, in answering this question, reverts at once to the large category of insane objects—the hysterical, neurasthenic, mento-pathological, somnambulistic and hyper-anæsthetic,—such as swarm the asylums of the world, and especially the clinics of Salpetriere. We cannot deny that among these many thousand have lost the primal consciousness of their beings and are now deluded into the belief that they are other people than what their birth-right justified. Neither can it be denied that for centuries it was believed and seemed perfectly plausible that when these persons died, they passed from this life in the possession of a foreign consciousness, in which, should they awake in some other sphere, they would seem to be different per-

sons than they were known to be in the days of their normal health and characteristics.

The presumption follows that if personality can be thus permanently dissolved, then even if there were an after life we have no scientific ground on which to rest the certainty that our present selves or normal personalities would prevail. That is, judged by the limited knowledge which was in vogue for ages concerning the mental condition of those pathological subjects, we would doubtless be driven to the conclusion that the individual is vouchsafed a permanent existence wholly dependent on circumstances. In a degree this is true. What we call personality is not essentially permanent. It is the result of motion, or the aggregation of certain physical and psychical elements, whose continuity and associative persistence depend on the tenacity of the power that combines and correlates them.

But what has been recently discovered is the fact that the separation or dissipation of the original self, into many selves, is not necessarily a permanent condition; that the continuity and integrity of the one self is the result of a certain psychic element, which culminates in its highest evolution into self-consciousness; and that the continuity of the personality is commensurate with the degree of the intensity of self-consciousness attained. This is the thesis which we shall here more fully discuss.

If it can be demonstrated that the chief reason why the hysterical and insane have lost their primal personalities, and enact many different roles in the same physical organism, is because they had been

deprived of a certain psychic energy by whose restoration within their bodies their original personalities may be re-established, then we shall be on the road of discovering what is the mysterious nexus which maintains the unity of the self we are considering.

We have in previous chapters reviewed the facts which prove that every human being is possessed of a sub-waking self as well as the normally wakeful self. We saw how that inner self might be swayed, so that it would cause the body to act even intelligently, yet without the consciousness of the normal self. We also reviewed the facts that proved that there was a possible intercommunication between the two selves, or diverse planes of consciousness; thus showing that while the separation between the selves was complete, so far as the alternate states of consciousness went, yet that the dual consciousnesses were not necessarily unrelated or non-intercommunicable. We therefore discovered that there exists some sort of connection or nexus between the two planes of realisation or consciousness; though just what that nexus is we have not yet determined. This is the immediate object of our search. What is the nexus? What is the force that holds the two selves together—howbeit each is absolutely at times unconscious of the other? We shall first note how the distractions between the selves is accomplished; then we shall seek to understand the method by which the severed selves become united—that is, partially or wholly merged.

The separations may be caused by natural or ar-

tificial methods. A concussion, a surprise, such as a shocking bit of information, or anything which is startling or temporarily paralysing to the normal functions of the body, may be the natural cause of distraction between the selves. Or the control of one mind over another, either by command, suggestion or hypnotism, may equally be an efficient cause of the same effect. We shall review a few cases brought about by both forces, and then study the law by which after the distraction had been effected, the restoration of the psychic unity, or normal consciousness, is accomplished. This will lead us to an understanding of the force, or nexus, or connecting element, which operates in the maintenance of the waking consciousness, and will guide us to the further apprehension of the potential force that may maintain the permanent integrity of the soul even after the dissolution of the physical elements of the human organism.

Let us then, first, study a case in which distraction is produced by an artificial method. We will recall the cases of Professor Janet, of Dr. Mason, and others. We will recall that some of these (as Janet's "Louise") were the direct products of the operator's suggestion; that others (as Dr. Osgood's case) were indirect results of hypnotic control, while others (such as involuntary writing) were caused by partial inhibition of certain nerve centres and exaltation of other centres. In the latter experiment a very suggestive feature is that observed by Binet, who informs us that the involuntary mind once having been impelled to a certain action

is inclined always to repeat it. He would slip a pencil into the hand of an affected subject, who reading a newspaper, was wholly unaware of what he had done. Then, while the subject is reading attentively, all unknown to her, the hand in which the pencil had been placed begins to make certain scrawls. Binet then, observing what sort of a scrawl the hand inclines to, guides it along the lines till it executes them with facility. "Having communicated these movements for some minutes, I left the hand to itself quite gently; the hand continued the movement a little. After three or four experiments the repetition of the movement became the more perfect, and with Mlle. G., with the fourth sitting, the repetition was so distinct that the hand traced as many as eighty curls without stopping."

Having accomplished this much, he then observed that a rudimentary memory remained with the hand. If the hand had grown accustomed to make a certain figure, as for instance curls, it always had a tendency to return to that movement. Binet experimented with the subject who had become accustomed to trace curls, and then got the hand to trace the figure 1 a hundred times; but as soon as the hand was left alone instinctively it returned to the tracing of curls. "The sub-waking self, like a child, learned to use the hand and to write, and showed that it remembered what it once learned, and that it was easier for it to perform the acts once acquired" (Sidis).

Here, then, we find that instinctive repetition, or memory, is a powerful force in establishing a con-

tinuity of consciousness. Memory is itself a faculty of the subliminal organs, and can never be employed by the conscious mind simply as an act of will. Memory may be said to lay the foundation of will. It is the instinct of repetition; will is the capacity of choice. But can there be consciousness without memory? Certainly. The instant of experience is of itself sufficient as a datum of consciousness without needing any preceding event with which to be connected. However, such an experience is wholly unknown to us, because our plenum of consciousness consists of a synthesis of infinite experiences. Therefore, though there may be consciousness without memory (*Sidis*), it is a purely hypothetical state, conceivable only by the mind, but not provable by experience.

Now then, as memory is the basis of practical self-consciousness, the continuity of such consciousness will of course depend upon the vividness and instantaneousness of memory. The absence of memory, we thus observe, is the chief cause of the cleavage of distracted states of consciousness. If the hand that now writes on paper does so without the consciousness of the owner of the hand, it is merely because the memory of the hand for the time being is lost to the paramount consciousness. The dormant consciousness, which ordinarily has no power over the hand, now comes into its control. But the paramount consciousness which ordinarily controls this hand has no memory (during the temporary usurpation of the dormant consciousness) of such control. Two opposite though parallel lines

of memory are thus established. So long as these memories are unmerged, or not brought into the plane of mutual consciousness so that each is aware of the other, we have a distracted or dual personality. But if at any moment the opposite memories can be brought together, and the alternate memories establish mutual recognition, then the two personalities are united. This is exactly our experience in dreams.

In the dream memory a special drama of existence is established, wholly unassociated with the waking memory. So long as we are dreaming we are wholly different personalities than when we are awake. Therefore, often on awaking we are surprised, as slowly the drama of the dream-memory shifts before us, and little by little the scenes are reproduced, till the whole drama is recalled. Then the two memories are united and we find that what we were in the dream we now fully remember. Therefore we are able to say that the dream personality, though temporarily different than ourselves, was really an experience of ourselves, because we can remember it and put it within the plane of our consciousness.

*The integrity of personal self-consciousness will then depend upon the capacity of an individual to hold together the elements of experience in a syn-
thetical memory.* The loss of consciousness will be in proportion to the dissipation of the elements of memory; and if such incapacity continues the absence of the consciousness of such personality will also continue. This is the explanation of such cases

as Ansel Bourne, Mary Reynolds, and all the rest which we have studied.

The question now arises, does there come a time in the life of an individual when there may be such a total loss of memory that the personality is completely obliterated; and, further, if so obliterated, is there any possibility of its restoration? Again, if such restoration is possible, what does it prove with regard to the potential permanence of an individual personality?

There are some famous pathological cases which will let light into this problem. We shall here review the case of the Rev. Thomas C. Hannah, which came under the care and observation of Mr. Boris Sidis, because it so clearly demonstrates the point at issue which we are now considering. It shows how, even if the personal ego be so utterly dissipated that every apparent basis of the normal consciousness is destroyed, yet if a physiological reconstruction can be accomplished the normal self will return to its throne of authority. Hence potentially the self-conscious ego is supreme and permanent. The case of Dr. Hannah, as described by Mr. Sidis, is as follows:

On April 15, 1897, Mr. Hannah met with an accident; he fell from a carriage and was picked up in a state of unconsciousness. When the patient came to himself he was like one just born. He had lost all knowledge acquired by him from the date of his birth to the time of the accident. He lost all power of voluntary activity, knew nothing of his own personality, and could not recognise persons

or objects. He had in fact no idea whatever of an external world. Objects, distance, time, did not exist for him. Movements alone attracted his involuntary attention, and these he liked to have repeated. Nothing remained of his past life; not even a meaningless word, syllable, or articulate sound. He was totally deprived of speech. He had lost all comprehension of language. The conversation of the people around him was to him nothing but sounds, without any meaning. He had lost all sense of orderliness in his responses to the calls of nature. The patient was smitten with full mental blindness, with the malady of complete oblivion. Impressions coming to him from the external world had lost their meaning; the patient did not know how to interpret them. He was like a new-born babe. The patient opened his eyes on a fresh world. Impressions received from his sense organs kept his attention busy in the elaboration of his new world experience. He did not know, could not recognise, anything from his former life. No object, no person, however intimate and near, awakened in him the vaguest sense of familiarity.

The patient had to learn all over again. He soon regained the use of the voluntary muscles from involuntary movements and instruction. He learned to use his arms and legs in working and walking, and acquired a knowledge of objects and their distance; he no longer attempted to seize his own image in the mirror, no longer stretched out his hand to grasp distant trees or far-off shining lights. He learned to know different articles of food; he no

longer ate apple, core and stem, nor did he any more attempt to devour cakes of soap given to him. With a strong intelligence left entirely intact the patient learned things very quickly. His progress in the acquirement of knowledge was such a rapid one that in a few weeks he was fairly able to comprehend his environment and to communicate with people. . . . He also gained a knowledge of reading and writing, in a very imperfect way, though. . . . He was ambidextrous; he could write equally well with both hands, something the patient could not achieve before the accident.

All knowledge of his past life before the accident was totally gone; all his scholarly attainments, all his higher scientific and linguistic acquirements, all the memories of his former experience, seemed to have been wiped out by the destructive violence of the catastrophe. Persons whom he once knew intimately had to be introduced to him again. He could not recognise his parents, nor the young lady to whom he was attached. From later enquiry it was found that the patient had lost his sexual instincts. He had no idea of the sexual functions, and of the difference between man and woman. The only life experience known to him dated from the time of the accident. He was practically but a few weeks old, and in this brief period of time he rapidly passed in his development through all the stages an infant passes in its slow growth of years.

From this description it would seem that what we call the personality had been as completely demolished as is possible. We find that the old self,

with its manifold experiences and life history, had completely vanished. A totally new self obtrudes on the seat of the old self. The old self is totally eclipsed; no trace, vestige or intimation of it is left. One would say, knowing nothing more of the case, here indeed is a demonstration of what Dr. Tyndal called the eclipse of the soul, which proved that it has no existence other than that of the body. But the marvel of this case is that it proved the normal self or primary ego potentially exists even in an organism so completely shattered as Mr. Hannah's, and that by proper education and mental guidance it may be fully restored. This is what actually occurred to Mr. Hannah. But the manner in which this was accomplished, and the events which took place during the transition are so suggestive as to be worthy of especial note. The self was not instantly restored. But gradually the new self was able to look back into the old self, and slowly, vaguely, as in dreams, catch glimpses of it. Here are Mr. Sidis's notes a few weeks after the treatment:

"The patient is but a few weeks old, and no memory of his previous life spontaneously occurs to him. The accident may be considered as the boundary line separating two distinct lives of the same individual. What had occurred in his former life before the accident is unknown to the personality formed after the accident. Two selves seem to dwell within H. One seems to be deadened, crushed in the accident, and the other is a living self whose knowledge and experience are but yesterday. It seems to be a case of double consciousness, and the patient is now in the secondary state.

"But under treatment the old, crushed self seems dimly to dawn on the consciousness of the new, infant self. This old life came up vaguely as in dreams. 'I have two kinds of dreams,' he answered to a question. 'In the one kind the pictures are not clear; I can recall, but I cannot see them well. In the other kind of dreams it is so clear that even now I can see them well.' . . . It turned out that the dreams related by the patient and characterised by him as 'clear picture dreams,' and afterwards as 'visions,' and which we may term 'vivid experiences,' (in contradistinction to dreams being 'faint experiences,' if compared to those of the waking life), it turned out that these dreams were real occurrences in the patient's former life now lapsed from his memory. The patient, however, did not recognise them as past experiences. To him they were extraordinarily vivid dreams, strange visions, having taken place within his present life experience and without the least hint as to their qualitative pastness. The meaning of these visions was beyond the patient's ken. In these visions, incidents, names of persons, of objects, of places, were arising from the depths of the patient's split-off sub-conscious life, and reaching the surface of the upper consciousness, were synthesised within the patient's narrow circle of the waking self."

To show how completely the two indwelling selves were separated in the patient's individuality, the author says:

"The 'primary state,' included the patient's whole life up to the date of the accident; the 'secondary state,' dated from the accident, and included all the knowledge and experience acquired in that state. In the primary state the patient was discussing meta-

physics, philosophy, theology, and even once wrote for me a concise statement of the science of pathology; in the secondary state he did not even know the meaning of these terms. In the primary state his handwriting was fine and delicate; in the secondary state it was awkward and childish, and he could only print capitals, as he had not yet learned to write them. Whatever he did in one state he could remember only when he again passed into that state. The events of one state were not known to the patient when in the other state. Complete amnesia separated the two states."

Having discovered then that the old self was really not crushed out but still lay latent, howbeit involuntary within the old organisms, the remarkable discovery is that this self came back to the new self in ever-recurring visions and dreams till at last, after verging nearer and nearer to each other, they blended and the new self sank into subsidence while the old self gained its primary and normal ascendancy. "By means of a method used by me," says the author, "a method the value of which seems to me to be inestimable for theoretical and practical purposes, *the two alternating personalities were finally run together into one.* The patient is now perfectly well and healthy, and has resumed his former occupation."

Here, then, we find an incontestable answer to Dr. Tyndal's famous criticism on the theory of the soul's existence; for, while apparently the soul of the old personality had vanished from the person of Thomas Hannah, in reality it had only lain in silence awaiting the magic which should again call

it to its regnancy. Notwithstanding his terrible condition of utter oblivion, the complete obscuration of his normal knowledge and consciousness, we learn that finally these were restored to the patient, and he is again perfectly his former self. That is, the soul, whatever that may be, which functioned in his old personality had not absolutely disappeared because of the crushing accident to the unfortunate man. The point, however, in this case which calls for our especial attention and study, is that during the periods of hypnoidisation (not full hypnosis), his former life returned to him, incident by incident, until all his past was restored to his normal memory. Nothing whatever, not even the minutest event, was lost from his sub-consciousness. There everything which had occurred, the entire history of his experiences, before the accident, was indelibly and unobliterably registered. Dr. Tyndal's mistake consisted in his utter ignorance of the psychological processes, even of his own organism. Dr. Tyndal's query as to what became of his soul during its period of obscuration because of the concussion which befell him, is more than fully answered by the experiences of Mr. Hannah after his accident, and the strange story of his restoration to health. Nothing was actually lost to Dr. Tyndal's ultimate consciousness, any more than aught was lost to Hannah; what was really lost to Dr. Tyndal was not his soul, or the element in which is registered the data of the life experiences, but merely the association of the memory consciousness, the nexus, which bridges the sub-waking and the waking state

of the self, which had been dissipated because of the disaggregation of the nerve cells by the electrical concussion.

Such startling phenomena prove to us that while there may develop a variety of personalities within the same organism, nevertheless, the persistent individuality—the basic Ego—is potentially permanent, and subject to normal restoration when partially suspended. The ego always exists potentially; its expression may vary and lose its singleness, because the nature of the instrument through which it expresses itself, may have been altered or disturbed. Yet, if the instrument can be restored to its primary state, the normal and permanent ego immediately reappears. Manifestly the expression of the ego depends on the frame work within which it builds its home. If the framework is distorted the ego will be fractured and manifest an inconsistent and irrational character. Yet the fact that the physical framework is essential to a characteristic memory, does not argue that if the framework were ultimately dissipated the memory would necessarily dissolve with it. For we have seen that the memory builds up a history and individuality of its own. It is never destroyed; it lies latent, or subsident, but is not annihilated. Once the instrument is restored, instantly the entire memory-history is reproduced, showing that the memory-life is as distinct a reality as is the instrument which it requires physically to express itself. The memory tracings must have remained intact in some substance, even though the cells were shattered. Else how could the

memory be restored? Does there not exist an indestructible substance in which are registered the effects of human experience and which is the physical source of memory?

It matters not if in one's dreams, in diseases, in states of hypnotic abstraction, or in the results of accident, one acquire a duality or variety of personalities, which for the time being seem wholly to possess one, nevertheless, there seems to exist a perfectly linked memory-chain, by which all the personalities are held subsidiary to a single primary individuality, which in itself seems to be permanent and conceivably indestructible.

This is the fundamental fact, and the marvellous revelation of modern physiological psychology, namely, that the ego, or the self-conscious "I," is potentially susceptible of permanent self-realisation, is, as it seems, the ultimate reality back of or within the varying and seemingly contradictory experiences of transitory personalities. The "I" is ever self-discoverable. Although seemingly for a time the "I" may be obliterated, science is now able to prove that it is not necessarily an ultimate obliteration, but the rather an obscuration, a momentary disappearance. What occurs in such a state is merely a temporary subsidence of the self-conscious memory-ego; but by proper appliances, or manipulations, or mental processes, it can be aroused from its sunken depths, and gather into its own centre whatever innumerable experiences may have di-

vulged themselves through strange personalities during its passivity.*

*This restoration of the synthesis of the Ego is a comparatively recent achievement of psychiatrists. Boris Sidis, as above intimated, seems to have demonstrated it in his ingenious treatment of the case of Dr. Hanna. Speaking of this case, as Dr. Sidis says: "The treatment was the first experiment of the kind in the effectiveness of synthesis, since, as we have seen, in no case of multiple personality was a synthesis brought about. So much so that Ribot, in his work on 'Diseases of Memory,' tells us that 'observation does not show that its chasm is ever bridged over by direct recollection.' The cases were of long standing, the alterations of personalities continued for years, and sometimes the whole lifetime; the only one who attempted to effect a synthesis was Professor James, but he unfortunately failed, as he employed a wrong method, not basing his attempt on the insight into the mechanism of this form of mental malady. The fact that such a synthesis, or as Ribot terms it, a bridge, was until now not effected in any of the cases, made the great French psychologist stop short in his conclusions and say that 'two suppositions are possible, either the registration of anterior states is effected, or the conservation of anterior states persisting their power of revivication by association with the present is destroyed. It is impossible to decide arbitrarily between these two hypotheses.' In the case of Hanna the *chasm was bridged over by direct recollection*, thus demonstrating the correctness of the second hypothesis." ("Multiple Personality," by Boris Sidis, p. 452, 1905.)

CHAPTER XVII

MEMORY, MAKER OF PERSONALITY

Defined in the light of the latest discoveries in empirical psychology, "Personality" may be described as a more or less permanent group of memories. The ego or consciousness is a constituency of memory experiences. Memory may be latent or active; when latent, then the personality, made up of such memory-groups, is subsident, or beneath the threshold of immediate self-consciousness; when active, then they constitute the content of instant or immediate self-consciousness. The psychological element of consciousness is, then, the capacity of recall, or the memory instinct. The physiological basis of the memory instinct is the capacity of aggregation among the cortical cells of the brain. Is it true, however, to say that without such palpable cellular aggregations there can be no memory-groupings? Are not the memory groupings themselves a product of psychic activities which are somehow registered in a substance over which the cell does not have final control? The memory force is the source of the impression made on the cells in certain groups. Without such impression there would be no such groupings. Yet the groupings would not be cognisable to us without the physical instrumentality of the brain which receives them.

But the cell-forms themselves can no more be called the memory than the seed or flower can be

called the sunlight. Undoubtedly the sunlight is registered in the exfoliations of the seed and flower, yet the sunlight is more than they are. So, the memory experiences are undoubtedly registered in the cell groupings, yet the experiences are more or larger than the groupings.

But what we call any personality is such groupings of memory as are, for the time being, registered in certain complex cell associations, and which are revealed to us through such cell formations. We are not, however, to lose sight of the fact that the memory groupings are parallel facts alongside of the cell groupings; that the cell groupings are temporary or transitory; but that the memory groupings are potentially permanent, howbeit latent, as under certain conditions they may rise to the surface and command the presence of such cell forms as shall reveal the presence of the memories.

Manifestly, then, there are psychic forms of association operating through some intermedial substance not evident in the physical associations. The palpable physical associations may be dissipated, and yet while so dissipated they contain the elements of the memory-groups registered within them. But the registrations are there, and when the memory force becomes powerful enough it calls the cells together again, in such necessary associations as to reveal its presence.

Hence it is not unscientific, it seems to me, to regard the memory groups or psychic forms as the constant or dynamic factors of personality, and the cell forms or associations as the transitory or passive factors.

As, therefore, we learn that memories, long buried within the depths of a human being, yea, even memories which were not personal, but have descended by heredity from ancestry or the fountain head of the race itself, may under peculiar conditions suddenly rise to the surface and obtrude themselves on one's consciousness, it follows that memory-groupings or distinct personalities may come and go within our present natures, and, logically, may impose themselves upon other natures or organisms within a world we cannot now comprehend. It is this fact of the actuality or permanence of psychic forms, known as memory-groupings, which we must keep well in sight when we contemplate the possibility of the after life. *For these psychic forms, or memory groups seem to be transcendent forces that compel the groupings of physical units through which they reveal themselves as distinctive personalities.* We need, therefore, but regard these memory groups, or psychic forms, as forces active in the realm of visible and invisible matter, to appreciate the fact that as such groupings have generated our present organic forms in the visible world, they may in the invisible world also generate forms which to our present senses are not cognisable. I descanted on this possibility in my previous work and shall further discuss the proposition in future pages of this treatise. I shall hope to show, in future chapters, that there exists within the cell itself a still more refined and potentially permanent substance than even the living matter which is regarded by biologists as potentially indestructible.

Invisible and ultra-microscopical as this substance is declared to be, it is yet not as sublimate, rare and potentially endowed, as a recently discovered force which enters into all the conditions and organisations of matter, and becomes especially the invisible and volatile embodiment of thought, volition and memory in living organisms. We find in this peculiar substance the ultimate physical basis of the conscious ego and its unconscious subordinates.

The only remaining problem that might follow from this conclusion would be whether the personality possibly revealed in some future life, would be the same personality as the one which we beheld when the present life became extinct. This will depend, as we shall now attempt to show, on the cohesiveness or persistence of the distinctive memory-groups which we call the known or present personality.

To try to make my meaning clear I will illustrate what I am here attempting to elucidate by a number of beads hung upon a single string. When the beads are all attached to a common string, bound together, they form an individual necklace; yet each bead in itself constitutes a separate unit or entity, being for the time only associated with other beads in order to form the necklace. Now each one of these beads stands related to the entire necklace as each memory-group in a human being stands related to his composite individuality. Cut the string and the beads will scatter on the floor. Now gather together different groups of these beads and hang

them on separate strings and they will constitute a number of distinct and different necklaces. So, for the time being, suppress the normal or constant consciousness of an individual, and his many memory-experiences will scatter into diverse and exceptional relations, and each one of these new relationships or groupings may constitute a separate personality, which may be remotely or immediately connected with the original individual. But the new necklaces which are made from the scattered beads consist merely of the original beads which were hung upon the string of the first necklace. So the diverse experiences or memory-groups of an individual may be separated from the original ego, and, under peculiar conditions temporarily associated with other memory-groups, which for the time being seem wholly to obliterate the original individual. Yet, just as we can gather together all the scattered beads and once more attach them to the single string of which the original necklace consisted, so we may gather together all the diverse experiences, or separate memory-groups, namely, the multiple personalities which split off from the individual, and again merge or blend them into the primary personality. In short, the string symbolises the individual, or constant ego, and as the string holds together all the beads, so the individual holds together all the distinctive experiences and diverse personalities which may form within it.

On the potential permanence of the individual, or the primary ego, rests then our hope, the foundation of the science of life, and the prophecy of fu-

ture existence. If the individual be susceptible of reconstruction, then it is potentially indestructible. One then, is always, in the last analysis, the self-same undividable self. What seems to be division is but splitting off a part or parts of the original unity. The problem of persistent integrity consists only in the capacity to rejoin or merge these parts together in the common self-consciousness, the constant ego.

This fact, it seems, had been largely lost sight of by psychologists who regard merely the personalities, and seeing that these constitute, for the time, distinctive states of consciousness, however variously associated with the primary personality, it occurred to them that the individual was not a reality at all, but that he was merely the accident of contiguous personalities or incidental memories. On the contrary, it seems to be the fact that the individual is the permanent basis or substratum of whatever personalities form around it; this exists as the primary memory-group, from which the offshoots of temporary personalities constitute merely flitting experiences. The personality is variable and transitory. The individuality is potentially persistent and permanent, constant and eternal.*

*It must of course be understood that we cannot assume, as is done by some psychologists, that the individualism is made up of several entirely separate personalities; that, for instance a gentleman whom they usually know as Mr. M—— carries within him also the personality of Mr. S——. The double Ego must not be so conceived, and if, as few incline to do, it is so conceived, we fall into danger of accepting an absurd conception of human consciousness. For our object the double Ego is only a diagram to indicate the fact that psychic processes may go on within us, unobserved, and often

This point is cogently discussed by Binet, as the result of many experiments, in his "Alterations of Personality,"† where he says:

"May we not then go one step further, and assert that the mental compound which constitutes the ego is constructed from these elements? On this point recent researches have thrown some light, and although it is negative, yet it is none the less valuable. It is this: that the genesis of a personality cannot be explained by the association of ideas. Subjects who divide their existence between two different mental conditions may in one of these conditions be utterly unable to remember events that are connected with the other. The loss of memory is so absolute that a person seen during one of these conditions is not even recognised in the second, and the physician must be twice introduced in order to be known by both personalities. It is enough to say that the usual magnetism of memory ceases to operate.

"Under slightly different conditions of experiment several psychological instances co-existed in the same individual, and ideas belonging to one of the consciousnesses suggest other ideas to the other consciousness. This fact of experiment shows us in a new light the inadequacy of association to explain the formation of synthesis. . . . The intellect is not composed entirely of an automatism of ideas and movements, since just where this automatism goes on most regularly, consciousness must stop and personality find its limitation.

"In short, the same individual may have a plurality of memories, a plurality of consciousnesses, and yielding no evidence of themselves except their results. This indeed is the kernel of Max Dessoir's theory." ("Hypnotism," by Albert Moll, p. 260. Walter Scott, London.)

a plurality of personalities, and each of these memories, consciousnesses and personalities, knows only what happens within its own limits. Outside of our consciousness may occur conscious thoughts in us that we are not aware of."

In the same manner writes Paul Carus, in "The Soul of Man": "What is a person but a human individual? And what is an individual but a thing which if broken or divided, ceases to be that which it is? A quartz-crystal is an individual; if you crush it it ceases to be a crystal, and is mere grains of sand."

But have not such writers wholly overlooked a very important fact? Have they not forgotten that the human individual is endowed with a force which does not exist in mere mechanical individualities. Once the individual WILL, *the evolution of age-long processes*, is formed, does it not become an initiative energy within the human organism which does not exist, save germinally, in the metal or the plant? And once it can be shown that by the power of the will, either exercised by the initiative of the individual or by the impingement of a foreign will upon it, the disconnected or contiguous personalities or consciousnesses or memories, within the human being, may be merged into a single, individual consciousness, then manifestly the human individuality possesses a potentiality far beyond inanimate, or semi-animate inferior organisms. This fact is well brought out in hypnotic experimentations. If the individual will is sufficiently organised, and the personality is firmly established against any

disintegration by opposing forces, then the will may be made positive to all insinuating suggestions. *So long as the will is positive, the personality cannot be split into distinctive parts.* This law is illustrated in the following experiment, which Sidis performed with one of his patients. After he was satisfied he had gotten him in the hypnotic state, he said,

"Just try to write your name." He wrote it. "Again." He wrote it once more. I asked him to write slowly; meanwhile I raised my hand, stiffened it, kept it before his eyes. The results were now extremely interesting. His hand became cataleptic; he could not manage it. In a loud voice he began to give suggestions to himself. "I am able to write my name;" "I can write my name," etc. Each time as he caught sight of my raised hand and listened to the torrent of suggestions I poured forth, his hand became slightly cataleptic and the letters broken, but each time he repeated his suggestions the hand went on writing. The waking self of Mr. W. and I were contending for the possession of W.'s secondary self; and Mr. W. succeeded at last in gaining full control over his secondary self. My suggestions were completely disregarded."

This example affords a strong illustration of the power of the individual will, once it is efficiently organised. The will responds to the strongest suggestions; but it has the power of selection among the suggestions impinged on the mind. Nothing seems to be able to overcome the self-suggestions of the individual, if they are made with sufficient strength and persistency.

The entire problem of the continuity of existence can be solved only by correctly apprehending the

nature of personality. Does the personality consist in the association of ideas, in the impingement of thought on thought (the wave-theory of thought propounded by Professor James); in the synthesis of the moments of consciousness, aggregating in the total consciousness of a person; in a series of contiguous memories, or in the element of self-consciousness, instantaneous or permanent, (Sidis), which culminates in the power of recognition? I find in the results of the experimental work of Boris Sidis the most satisfactory solution of the problem of personality which I have encountered. He demonstrates that personality can be apprehended only in the self-consciousness; but especially in that self-consciousness which is susceptible of recognition. He shows how there may be a mere recognitive consciousness, when an organism may be able to distinguish itself from other objects, a state which prevails in the lower kingdoms of life, but which is yet devoid of the element of self-consciousness, without which there can be no personality. He insists that not until consciousness rises to the point of self-consciousness, not only the capacity of distinguishing the objective world, but the capacity to see that the objective world is other than the subjective world, and a person is able to say not only "I know," but "I know that I know," not until that stage has been reached does personality begin. When, however, the stage rises to the point of being able not only to say "I know that I know," but "I know that it is I that knows," is personality fully developed and in control of the

entire machinery of one's being. Then has self-consciousness become capable of self-recognition. Recognitive self-consciousness is, then, the complete foundation of personality. Says Sidis: "Neither a connected series of moments nor their synthesis is the essence of personality; it is only consciousness of consciousness, the knowledge of consciousness within the same moment of consciousness; in short, it is only the moment of self-consciousness that makes of consciousness a personality."

In order, then, to penetrate the possibility of continuous life we must study the durability of self-consciousness. If once attained is it indestructible; is it unsusceptible of disaggregation; or can it be disintegrated and dissolved like any substance which is composed of differentiable elements? It is beyond dispute that mere consciousness is dissolvable or at least susceptible to division into the different units of which it consists. We have learned that the consciousnesses of the primary and the secondary selves are two distinct things. They can be totally separated, so that they will act as if through different organs, and establish for the time being two wholly distinct personalities. But the secondary or subsidiary personalities are essentially *temporary* or *ephemeral*, for it is the incidental association of ideas or experiences which for the moment were thrown together and became but chance acquaintances. "If you can only in some way or other succeed in separating the primary controlling consciousness from the lower one, the waking from the sub-waking self, so that they shall

no longer keep company, you can do anything you please with the sub-waking self. . . . The nature of its plasticity is revealed by its complete suggestibility. *Unlike clay, however, it cannot be hardened into any permanent or durable form.*" (Sidis.)

The momentary personality so formed from the consciousness that arises from the throwing together of ideas or experiences, which had not theretofore been associated, can not be of a stable character because it is not entirely devoid of self consciousness, which is serious, but of recognitive self-consciousness, that is, the ability to know that it is itself as absolutely distinguished from every one else. It is capable of passing instantaneously from one state of consciousness to another, without the ability of knowing that it is always the same person entering into such protean situations. The experiences of this sub-waking self are precisely like those we have in dreams. In the dream state we may change our consciousness or our personality a thousand times in a single night, and so long as we remain in the dream state we have actualised in our consciousness each one of these different roles. In the dream state there is generally no continuity or permanence of consciousness, no recognition of former states of consciousness, no link of memory groups, no co-ordinating basis of individuality. Flux, change, alteration, dissolution, is the qualitative essence of our experiences. The dream self has no personal character. And this is precisely true of the secondary self, or sub-consciousness. Says Sidis: "Under certain circum-

stances a cleavage may occur between the two selves, and then the sub-waking self may rapidly grow, develop and attain the plane of self-consciousness, get crystallised into a person, and give itself a name, imaginary or borrowed from history. But this newly crystallised person is, as a rule, extremely unstable, ephemeral, shadowy in its outlines, tends to subside, to become amorphous, again and again gets formed, rising to the surface of life, then sinks and disappears forever more. The two selves blend and once more form one conscious individuality." Again he says:

"The sub-waking self is devoid of all personal character; it is both sub-personal and impersonal. And when it attains the plane of self-consciousness, and the conditions are favorable to its remaining there, it is always roaming about, passing through the most phantastic metamorphoses, assuming with equal ease all kinds of personalities without regard to time, station, sex or age. In automatic writing and kindred phenomena, the sub-waking, sub-personal self is now Luther, now Mme. Pompadour, now Mozart, now Charlemagne, now Aristotle, Plato, and now an Indian brave or squaw."

We see then that whatever self-consciousness such personalities acquire it is of an unstable and ever transitory nature. It cannot be thought of as the self-consciousness of the primary self, for this we know is continuous, permanent, stable, reliable, and endowed with a recognitive memory, which renders it ever capable of recalling any experience as once an element of its own content. We know that this

self-consciousness cannot by any possibility deceive us into the belief that at one moment we are Bonaparte and at another the Shah of Persia or Alexander the Great. In the primary self-consciousness, we are always ourselves; but in the secondary self-consciousness we are as like as not never to be ourselves or capable of persistent self-recognition.

Hence, it must be apparent that the primary self-consciousness is a higher stage of development, is an older and more efficient product in the process of individual evolution, than that of the secondary consciousness or secondary self-consciousness. As it is an older and more complex product of evolution, it would seem to indicate a more permanent or durable character, for we discover in nature that the higher or more complex the organism, that is, the more perfectly differentiated, the more fitted is it to conquer or harmonise with its environment and thus maintain its existence.

CHAPTER XVIII

MECHANICAL MECHANISM OF MEMORY

The theory is advanced that memory and consciousness are merely the accompanying mental states of certain motions within the physical organism. That there is no distinctive psychic realm wherein thought forms and ideas organise of themselves; but that they are rather the reflex or mental accompaniments of certain neural states or processes. Says Prof. Mercier*: "The functional activity of certain regions of the nervous system is accompanied by consciousness. When, in this region, the functional activity is modified by an experience, the modification is attended by a modification of consciousness; and when that nervous process again becomes active, the active memory is accompanied by a phase of consciousness which reproduces the modification."

According to this law, all states of consciousness and memory can be traced in the structural modifications, and conversely there are no states of consciousness which are not parallel with such modifications. "What endures, when a conscious state is revivable but not actually revived, is not a conscious state at all, but a structural modification of the tissue," says the same author. From this point of view we are not to conceive of latent mental activities, which somewhere reside superior to the control of the structure, and are capable at times of in-

*"Psychology," p. 394.

vading it. There are no psychic or mental forms *per se*; there are merely latent modes of motion within the nervous organism, which once becoming active, eventuate in certain states of consciousness and memory. But what is ever active is not the mental process, as a force by itself, but the latent motion, which actively accompanied some former mental process, and is ever subject to resuscitation. To say that the solution of the problem is to be sought in the theory of obscure or latent modifications (that is, mental activities, real but beyond the sphere of consciousness), as Sir William Hamilton surmised, is to this author and his school, "but to satisfy oneself with an explanation which is purely verbal." The logical conclusion from this theory naturally follows that when all structural modifications cease to be possible, when the organism enters into such a state of passivity that it is unsusceptible to motion, either internal or external, consciousness ultimately ceases and there is no possibility that it can ever be reawakened.

In this age of physiological psychology none can deny that we recognise a constant parallelism between mental and neural processes, and that what we call consciousness and memory are unknown to us as we now exist except as they become possible through certain neural modifications. But are we to conclude from this, as a logical necessity, that the mental processes in themselves are not actual factors aside from the manifest physical instruments through which they are revealed? Must we conclude that the motion, which we differentiate as

a mental activity from that which is a neural activity, is merely a logical hypothesis, having no actual existence, while the substratum of the neural activity is indeed real, and alone to be accounted for? Are we to conclude that what we are wont to regard as thought, consciousness and memory, are merely certain lines of motion which permeate the nervous and cranial systems of the body, which, when the physical body dissolves, must themselves disappear among the forces of the world? It would seem to me that this is an unwarranted conclusion for the following reasons:

First, all motions which reveal themselves in the forms and modifications of matter are themselves the resultants of some force or form of motion which preceded them. A stone falls in air because of the incidence upon it of some mode of motion which preceded its fall, and without the communication of which it would have remained stationary.

Second: Any motion once active tends to repeat itself. Having once impinged its energy upon a form of matter the latter becomes the more susceptible to its impression and inclines to habitually yield. In short, any mode of motion, once begun, inclines to repeat itself and become a habit.

Third: All modes of motion are either mutually attractive or repulsive. As they develop their mutual polarities with reference to each other, they combine or separate. So long as they wander away from each other, matter remains formless or chaotic. So soon as they mutually associate, matter organises and intelligence begins to be revealed.

Fourth: Any motion operating through a certain material instrument may, on being released from it, impinge upon another and communicate its action to the latter. This is recognised in the law of the transmutation of energy. When the motion of a falling piece of iron impinges a bit of stationary iron, the impinging motion is transmuted into heat and possibly light, if a spark be emitted.

Fifth: Not only may the motion communicate itself by transmutation into some other form of energy, but the identical form of energy may be communicated to some other physical instrument. This law we perceive in operation in electrical action, especially as witnessed in wireless telegraphy, and in the resonant response of synchronous instruments. The electrical energy which escapes from the instrument and sets another instrument in motion is identical. The Hertz wave is a distinct form of motion and communicates its identical motion to the receiver. The electrical force is not transmuted into some other form of energy, but the precise form remains, and that is directly communicated. So, when the strings of a certain instrument are aroused by a form of motion which is communicated to it from some other active instrument, the form of energy remains unmodified, and the physical response in the second instrument is identical with that of the first. This is also observed in the phonograph, when the exact form of the motion—the shape of the sound—is communicated to a cylinder, from which the precise, identical sound, or form of motion, is reproduced.

From the above propositions it would follow that a form of motion, once organised, remains potentially identical and permanent, until at last it is interfered with by some other and opposing form of activity. The motion or force is then a fact, as well as the material substance through which it is revealed to our senses. The permanence or perpetuity of the form of motion will depend only on its resisting power, and its capacity to fight off all opposing forces. Indeed this law lies at the very base of the theory of evolution. For only by persistence of force has come to pass the permanence of forms and the ultimate organisation of the universe.

If, then, a thought is a form of motion, and an idea is a complex form of thought, or organised motion, why would it not follow that it necessarily exists apart from the especial brain or nervous instrument through which it becomes revealed to us? We do not mean to intimate that the thought can exist wholly void of material association; but merely that its existence may not necessarily be limited to the visible substance of the universe, but may remain permanent in a more subtle phase of matter.

According to the first reason we above set forth, the motion in the nervous system which we call a thought or an idea had somewhere else its origin. It must have existed before its impingement on the nervous substance. It may have com. as direct thought, immediate intelligence, or as suggested thought—an impression taking an unexpected form of apprehension in the mind. Judged by the law

that thought indeed is motion, and idea is organised thought, we may easily appreciate the theory that the ethereal atmosphere is permeated with myriad thought-forms which impinge or may impinge upon receptive minds and thus awaken their responsive intelligence.* This fact indeed accounts for specific modes of intelligence which at times seize the individual, society and the race.

*"Regarded on its physiological side an idea is only a vibration, a vibration that is propagated, yet which does not pass out of the medium in which it can exist as such. . . . But we must not forget that to produce an idea, thousands of repeated impressions were necessary, and every one represents a force. That force is accumulated, condensed, as it were, in an idea. . . . Thought stays at home, as the chemical action of a battery remains in the battery; it is represented abroad by its dynamic correlate, called in the case of the battery a current, and in the case of a brain—I know not what; but whatever its name may be, it is the *dynamic correlate* of thought.

"A blow with a hammer produces not only mechanical concussion, but also heat, electricity, a sound, a magnetic change, sometimes a spark, etc. Never is force *A* transformed in its entirety to force *B*. That is why I have chosen to use the term *dynamic correlate*, rather than mechanical equivalent. . . . A force that is transmitted meets other forces, and, if it is transformed only little by little, it limits itself to *modifying* another force at its own cost, though without suffering perceptibly thereby. This is the case particularly with forces that are persistent. . . . It is the case with the physiological equivalent, nervic force, psychic force, ideas, emotions, tendencies. These modify environing forces without themselves disappearing; they are but imperceptibly transformed, and if the next man is of a nature exceptionally well adapted to them, they even *gain* in inductive action, as the magnet gains by contact with an armature of soft iron, to which, nevertheless, it communicates its force. A sentiment that is communicated loses nothing; on the contrary, a polar induction often strengthens it. . . . Thoughts may not travel abroad, but they send forth in every direction their dynamic correlate; a wave is propagated." ("Mental Suggestion," Ochorowics.)

According to the second reason above given a thought as motion once instituted tends to repeat itself. Thus it becomes a self-acting energy, with a natural disposition to operate through any amenable instrument at hand. This law accounts for the persistence of thoughts which characterise our natures, for what we call idiosyncrasies, dispositions, genius, etc. We may well say that because of this tendency of thought to repeat itself and build up one layer upon another within the general mental structure of the individual, mankind has succeeded in developing great characters, great epochs and great civilisations. For it is by the law of cumulative energy that all forms of matter have been differentiated, and the essential heterogeneity of progress attained. Here again we observe that thought itself is a distinctive force which precedes what especial form of matter it may impinge upon or actuate.

According to the third reason above presented, thoughts are organised not only into individual ideas, but into social clusters, colonies and kingdoms. Thoughts aggregate around distinctive nuclei, just as certain chemicals do; they also are repelled by certain forces, just as certain physical elements are mutually repulsive. Hence we observe that as thought acts according to the same laws as matter with which we are acquainted, it must be an active energy, and that thoughts are correlate factors of nature in the same manner as are material substances.

We know that according to the law of the asso-

ciative qualities of thought, individuals are mated, societies formed, governments established, and civilisations founded. For what is a race but a community of people who have been crystallised by the distillation of a common thought that has permeated and saturated the associated mass of beings? This is quickly discovered when such a race is invaded by a mode of thought which is foreign to its native instinct or custom. Observe what happens if one nation seeks to coerce another nation into an acceptance of its thoughts and ideas. Their bodies must first be subjugated before their minds can be. Because of this law the sword has always been the forerunner of each new intellectual epoch of history. We observe the law of the transmutation of energy operate in the realm of thought or mental activity as well as in the realm of matter. When civilisations come in conflict the immediate result is the transmutation of the intellectual force of the conquerors into a compromising energy which makes for the advance of the race. Mark the invasion of the Northern Vandals in ancient Rome, the conquest of Iran by the ancient Hindus, of Russia by the Mongol dynasty, of Briton by the Normans, etc. In each case it will be discovered that the laws and customs of the conquerors were not maintained in their integrity, but sought a mutual compromise with those of the conquered; thus demonstrating the law of the mental transmutation of energy. It also shows the operation of the laws of mechanical motion, such as inertia as the resultant between conflicting forces, in the mental sphere or world of

thought. Here we have another proof that mental activity is itself an energy in nature, and cannot be set aside as a mere epi-phenomenon of matter, or a hypothetical parallel of physical activity.

But in the fifth reason above given we find the natural law which lies at the base of the identity of the individual, and a demonstration of the possible continuity of its existence. A form of energy persists to such an extent as to be able to cast itself upon a foreign substance and actuate it with the same mode of motion as the other substance from which it sprung. Synchronous instruments will mutually respond to the same mode of harmonious sound, to the same pitch, the same tone. The identity of the mode of motion which thus actuates two different instruments cannot be questioned. This same law we find operating in the impingement of thought from one mind upon another, in thought transference, or telepathy. Certainly the form of thought which emanates from one brain and, finding elsewhere a synchronous brain, awakens within it a similar state of consciousness, must be a distinctive organism, an actual factor in nature, a thing, if you please, and not merely an incidental accompaniment of certain physical processes. Hence, we see that consciousness or organised thought is itself a mode of motion, and not merely an imaginary parallel accompaniment of a mode of motion. If matter is constituted of motion, so is mind; if the material motion is actual, so is the mental.

But as identity is the result of the tendency to

repetition, or habitual action, it must be that if such repetition eventuates in identity in matter it must also eventuate in identity in mind, or consciousness. Identity of matter, we know, is dependent on the permanence of the identity of force. So long as the same force actuates the material substance the substance will remain the same; if a different force plays upon it the substance will take on a different form.

The same law applies to a human being, or to the mental state known as consciousness. So long as the individual is able to maintain the identity of consciousness so long will the individual survive all opposing forces. The identity of consciousness, as we have seen, is dependent on the persistence of the central self-consciousness which constitutes the essence of one's individuality. This identity we have learned can be maintained by the proper education of the individual will, memory, and self-realisation.

Self-realisation is maintained by the proper suppression of the warring under-selves which ever seek recognition and the usurpation of authority. In proportion then to the capacity of the individual to maintain the supremacy of the primary or normal consciousness will the integrity and perpetuity of the individual persist.

Now a distinctive law which modern experimental psychology has revealed, is that the prevalence of the opposing selves is determined by their positive and negative polarities. As the one rises in power, the other falls into subjection. If the primary self is supreme, the consciousness is wholly

unaware of the existence of the secondary; if the secondary has risen into authority then the primary sinks into commensurate inferiority. As Dr. Sidis puts it: "Once the cleavage occurs, we may say that as a rule *the growth, the development of the individualised sub-waking self is in inverse ratio to that of the waking consciousness.*"

One more fact, in this connection, must be emphasised to complete the argument we are advancing; that is, the discovery that the under or secondary self, called the subliminal or the sub-conscious, howbeit wholly unknown to the primary self, is ever in a state of wakefulness and activity. It must not be supposed that because the sub-consciousness is under all normal conditions of our present development unrecognised and unknown it therefore remains unorganised and inactive. We saw in previous chapters how large and convincing an argument could be presented from the psychological experiments which have been made on thousands of subjects, that proves not only the existence but the constant activity and operation of the under-self.

Here lie the results of the infinite forces which have played upon our beings both in our immediate past lives and in the lives which have bestowed on us the heritage of their past experiences. We have seen how these past experiences, all unknown to us, may organise themselves in special groups and thus institute what we call secondary personalities, which, if not controlled by the upper self, will at times, become so positive and powerful as to rise to the surface of one's being and usurp the place of

authority so long held by the normal consciousness.

It is true, psychologists seem to demonstrate that the secondary or tertiary personalities are but ephemeral, passing like a shadow over the landscape of one's constant self, or individuality; yet it cannot be doubted that these temporary personalities possess a certain pertinacity that sometimes almost rivals that of the normal self. Once the shadowy hypnotic or dream self is organised, it seems, under proper provocatives, to have the capacity of reasserting itself. A subject who is often subject to the insurgence of the secondary self comes in time to regard it as his normal self, so that tossed between the two his mind is distraught and his consciousness unbalanced.

For instance, there is the case reported by Doctors Prince and Sidis in the "Boston Medical and Surgical Journal," June 23, 1894, of a patient who when sixteen years of age met with a venture which caused him to be seized with a spasm of fear that caused his right side to become paralysed and anæsthetic. During a period of five years he was afterwards seized annually with the spasm. Referred to the doctors, Mr. M. was put into the hypnotic state. In this state he tells us that during his attacks he keeps on dreaming about the fright, fall, and about his illness. In short, he lives the same original experience over again in his sub-conscious dream. Suddenly, as if by the wand of a magician, his present personality disappeared from view and the old personality of the accident emerged. Mr. M. went into one of his attacks, living over again the same period of his life in Russia.

He ceased to understand English, and was carried back to his sixteenth year. He cried out in great agony, as one frightened to death, squirmed and twitched and began to shake.

“‘What happened to you?’ we asked. ‘I fall down,’ he exclaimed in his native jargon; ‘I got frightened.’ He then passed through the movements and shaking characteristic of the attacks. When asked where he was, he answered, ‘At home.’ ‘With whom are you now?’ ‘With my mamma.’ When the attack ceased he literally with a shudder came back to himself, his present personality returned, and on our question, ‘Where are you now?’ he promptly replied, ‘At the doctor’s.’

“In his somnambulistic state a whole series of outlived and long ago sub-consciously buried personalities could be resurrected from their sleep, and be made once more to appear in the light of the upper consciousness, each personality having its own chain of memories and peculiar traits of character,—but each time, as the 16th year personality was resurrected, the typical attack developed with automatic regularity, like a wound-up clock.”*

Thus there seems to be a certain fixity and permanence to the under self or selves, sometimes almost rivalling that of the constant or normal self. Moll† recites the case of a woman who was hypnotised, and then instantly recalled in every detail her experiences in a hypnotic state sixteen years previous. She had not been hypnotised in all the intervening period.

*“Multiple Personality,” Sidis and Goodhardt, p. 318.

†“Hypnotism.”

This state is also sometimes revealed in dreams. Some dreams are but serial dramas carried out through a series of years, night after night continuing the unfoldment of the story. A very interesting illustration of the continuity of a single thread through a series of dramatic dreams, extending over a long period of years, is given in "Multiple Personality," in the case of a woman called A. For years she had been troubled with nightmares and bad dreams, during which she was conscious of suffering severe headaches, but whose contents she was wholly unable to recall. When, however, put under the hypnotic spell, she revealed the entire series.

They were exceedingly dramatic and interesting, and all seemed to have been caused by an accident resulting in great fright, which occurred in her early life. This dream self was complete and perfectly rounded out. It was as positive to the subject during its experience as was the normal or daily self. Yet when the cause, the sub-conscious knowledge of the fright, was removed, the dreams ceased, and the headaches with them. In this and similar cases we are able to *discern the inconstancy and ephemeralness of the secondary self, howbeit its permanence seems well established.*

The dream state seems also to illustrate that the under selves are but flitting experiences which pass athwart the realm of the persistent Ego, leaving but vague impressions and often none at all. The self, the primal Ego, alone persists, the one constant factor amid the phantasmagoria of scenes, like the solid earth upon which fall the shadows and reflec-

tions of shadows of the clouds that pass between it and the sun. But the content of the constant Ego is so vast it cannot hold in its permanent consciousness the infinite variety of its elements. Within the vast subterranean depths of its being transpire a myriad of experiences, which seldom arise to the surface, to acquaint the master with them.

"The sub-conscious Ego, out of which the dream comes, is an infinitely vaster personality than the conscious Ego, and keen analysis of the compressed conglomerate of a dream is discovery, is a revelation of wishes, desires, conflicts, tendencies, characteristics, hidden far down in the inmost depths of the dreamer's individuality. These broken fragments of unrelated experiences, woven by the dreamer's phantasy into a sort of dramatic unity, drift, like the ice-floe, on that invisible sea of personality. Separately, piece by piece, the fragments are studied, and their old motives, relations and associations traced out. Each fragment is itself a condensation of some out-lived experience. As the paleontologist reconstructs his hypothetical monster from its only remains, a scale or a foot print, so the dream-diviner makes his synthesis from the vestige uncovered in the strata of dreams."*

Instead of regarding the sub-conscious selves as so many actual and distinct personalities, absolutely separable from the normal Ego, it would seem that modern psychology forces us to conceive of them, rather, as so many sub-divisions, or subterranean passages, of the Ego. We might think of the realm of Ego, or the constant spiritual self, as a house

*F. Peterson, Professor of Psychiartry, Columbia University, in "Harper's Monthly," August, 1907.

with a vast number of rooms, which are but seldom, and sometimes never visited by it. When the Ego deigns, or is forced to visit them, then it becomes so engrossed in its environment it seems to forget partially or entirely the scenes and wonted experiences it encountered in its customary abiding place. When thus engrossed it suffers the under self to possess it, and reveals only the characteristics of that aggregate of experiences. At times this aggregate absolutely submerges it. Whether it will return to its living room, its customary abiding place, seems to depend wholly on its strength and will-power, as we have already seen. It may be possible for the Ego, as in the case of Ansel Bourne, to penetrate so deep down in the subterranean depths, as to remain there for a long period, or as in the case of Mary Reynolds, to be unable ever to return during the occupancy of the present body. This, however, does not prove, as we have already observed, that the Ego has been obliterated and the sub-conscious absolutely substitutes it, but that it merely remains in a state of abeyance. The bridge between the self and the sub-self or selves has now been scientifically demonstrated. The self is the only constant; the sub-selves are the ever variable. The self is the mirror; the sub-selves are the reflecting images.

Does this interpretation do violence to the laws of physiology, biology, and the mechanical structure of the brain? I think not, and for a moment I must briefly discuss the proposition.

The apparent contradiction of thought that seems

to prevail between the metaphysical and the physical schools, in contemplating the problems which have been discussed in this chapter, has, I think, resulted merely from not sufficiently defining the terms employed. If the metaphysician is asked to explain how certain purely mental or spiritual agencies operate in the human system, he will of course be forced to confess that the exhibition of such agencies is apprehended in consciousness only through the material organs of the body. He knows nothing of consciousness, save as he is conscious of himself, and he can be conscious of himself only as he experiences certain conditions which he grasps through sensible media. If he believes that he enjoys thought or volition or imagination or pure reason above the restraint of the physical limitations, he needs but have some injury afflict a specific portion of his brain and he will find at once that a certain mental vocation is thereafter impossible. If his brain should suffer a lesion in a certain centre, he would forget the commonest and most familiar thing; an injury to any centre will destroy what has been stored there, although all the rest of the centres might stay intact. His brain is arranged in layers or shelves, as we might say, and on these shelves he has stored away divisions of his experience in the shape of languages, music, oratory, speech, vision, color, etc., etc. Any one of these shelves injured or shattered, spoils the exercise of its specific memory-function though all the rest are normal. So we might run through the entire category of human experiences, and find their cerebral or nervous complement in the human system.

Hence it would seem that the metaphysician must utterly yield to the physicist in his theory that the mental functions are void of restriction and nullification by the material organs of the body.

But there is a counter series of facts to be reckoned with. It is the discovery that howbeit these centres of the brain are injured or destroyed, it is now learned that the function which they once exercised can again be restored by a purely mental agency. For instance, we learn that under hypnotic or hypnoidal guidance certain thoughts or ideas may be projected on the brain of the patient, when it follows that new cells are actually organised to take up the work of the destroyed or injured cells, which not only perform their allotted functions, but even restore their past lives and recall their every experience. They will act precisely as if they were the old cells doing the self-same work.

Now what was the agent that accomplished this? Merely a thought projected from another mind, the mind of the operator.

Or again we have the case of a certain function of the brain having been abrogated because of the destruction of the appropriate cells in one hemisphere, and the calling into activity of the complementary cells of the opposite hemisphere, which not only do all the work that those of the original hemisphere performed, but even restore the memory chain of their obliterated lives. Prof. Ferrier, as we have already stated, mentions such a case. This is the more remarkable because the cells of the second hemisphere called into action had lain idle and unused from birth.

Now such cases prove that the mind possesses a power higher than what seems to be restricted to the capacity of the physical organs.

But does it therefore mean that the activities of the mind are exercised in insubstantial space, in an immaterial void, and that to accomplish the results above specified it employs no physical agency whatever? Here is the crux. We have been so wont to regard only the sensible and the visible as material that we have become much confused in our philosophical deductions.

Now it is the purpose of this work to attempt to show that while no mental function can ever be performed without the use of some material agency, yet the agency which the mind employs is not merely the sensible or visible organs and cells of the human brain, but an ulterior, superior and more subtle substance.

In a future chapter I shall attempt more fully to illustrate this deduction by a series of scientific facts recently divulged, which I believe will necessitate a wholly new interpretation of matter as well as of the substantial content of the mind.

CHAPTER XIX

PSYCHIC PHENOMENA AND SOUL-SUBSTANCE

However, before undertaking that argument, let us review in greater detail the amazing claims which have been put forth for the potencies of the soul or the psychic force in man. There is not only a vast literature recording these alleged phenomena, but there is an equally vast literature either utterly denying them, or attempting explanations that render them futile as innovating factors of human experience. We shall not here engage in that discussion. For the purpose of the point of view we are contemplating we may admit the historical verity of the phenomena, reserving only the privilege of so interpreting them as natural law and human reason may demand.

If they are all fraudulent and the result merely of cunning mechanical manipulation, then, of course they must be wholly disregarded as elements in constructing a theory of life now or hereafter. Insomuch, however, as there are so many recorded events both of manufactured and of spontaneous phenomenal occurrences that postulate either a supernatural interference with natural law or an extraordinary revelation of the possibilities of that law, it behooves us to accept what creditable evidence we have and regard at least a small moiety of the phenomena as genuine.

That is all that is necessary for the study of life's realities. If but one genuine phenomenon is incontestably evidenced, which forces us to read anew the laws of life and nature, then it is sufficient, even though it may overturn our time-honored philosophy. I shall refer, therefore, in what follows, merely to such startling occurrences as are supported by apparently incontestable evidence, and after reviewing them, shall see how they fit in with the hypotheses we have thus far briefly stated in the preceding pages.

My attitude regarding these alleged extra-normal phenomena is precisely in accord with Huxley's attitude toward the possibly miraculous. Showing the inconsistency of Hume's argument against the possibility of miracles, he said: "The definition of a miracle as a 'violation of the laws of nature,' is in reality an employment of language which, on the face of the matter, cannot be justified. . . . If a piece of metal were to remain suspended in mid air of itself, the occurrence would be a 'miracle,' in the sense of a wonderful event indeed; but no one *trained in the methods of science* would imagine that any law of nature was really violated thereby. He would simply set to work to investigate the conditions under which so highly unexpected an occurrence took place; and thereby enlarge his experience and modify his, hitherto, unduly narrow conception of the laws of nature."*

It is to be regretted that Huxley did not abide by the admirable law he here lays down when on an-

*Hume, p. 156. D. Appleton & Co., 1898.

other occasion he was called on to examine not the imaginary hanging of a piece of lead mid-heavens, but the well-attested phenomena to which we are now directing the attention of the reader. The phenomena I shall here enumerate are of that class that would apparently show that the soul force, whatever it may be, is wholly different from any mechanical or muscular force the body manifests.

First, then, there is a class of alleged phenomena which would indicate that the psychic force or soul-substance (if such it be) is subtle, ethereal and perhaps magnetic. I will first recite a case which I find in "Metaphysical Phenomena," a book recording the wonderful results achieved by Dr. J. Maxwell, Deputy Attorney General of the Court of Appeals, Bordeaux, France, through the alleged mediumship of one M. Meurice. The introduction to this work is written by Sir Oliver Lodge. In this introduction Sir Oliver warmly commends the book as containing an honest record of events by a uniquely equipped observer, a gentleman of independent means, who gave up many years to the study of psychological wonders. Richet and many others of high scholarship and repute also speak in unqualified terms of the sincerity and ability of Dr. Maxwell, and of the genuineness of his observations. It might be well to inform the reader that the medium, whose *nom de plume* is M. Meurice, unexpectedly one day divulged in Dr. Maxwell's presence the power which he did not know he possessed, and, after that, reluctantly yielded himself to Dr. Maxwell for purposes of mutual study and

investigation. The work records many amazing events, which Dr. Maxwell testifies to unhesitatingly. I recite here the case that seems to indicate the sublimate and magnetic quality of the so-called soul-force or psychic substance. The note is from Dr. Richet:

"Before sitting down, Dr. Maxwell had placed on the table a small card-board box in which were two amethyst crystal balls.

"The small table was six inches away from M. Meurice, and three inches away from Professor Richet. Contact had been purposely established between the two tables by means of a small white tablecloth—which did not interfere in any way with the control of eyesight. A bright electric light was burning.

"Several visions were described; they offered little interest. Then the small table moved abruptly; it approached the seance table in jerks, covering, in this manner, a distance of two and a half inches. It was verified that no contact whatever existed, save that with the white cloth the latter was not touched by M. Meurice.

"M. Meurice was asked by Dr. X. one of the sitters, while Maxwell and Richet for a moment retired to the balcony, 'how he proceeded when he wished to attract articles.' He replied: 'I have an odd sensation in my fingers and I do this'—accompanying his words by certain hand movements; that is, he drew his hands in front of and quite close to the card-board box still lying on the table; he withdrew his hands—joined together at the finger-tips,—very slowly, and when the tips of his fingers were at a distance of six inches from the box, the latter began to move. It moved slowly and smoothly, without any jerking whatever, exactly as though it were being

dragged across the table by a cord. I thought I perceived a tiny ray of light;—something like a dewy spider's web with the sunlight gleaming through it—connecting M. Meurice's fingers with the box, but it was probably an illusion, as there was nothing palpable to touch. I passed my hands around the box, and all over the medium's hands and arms, but there was no thread of any kind. M. Meurice said he had not seen the box move, though I observed he appeared to be gazing fixedly at it during the operation, and though the box travelled a distance of six inches.

"Without leaving my seat I called in Dr. Maxwell and Professor Richet, and told them what had happened. M. Meurice was asked to try again, while Professor put out some of the lights, thinking thus to help the force, which may have been too severely tried by its last effort. I take the following extract from Professor Richet's notes:

"The same phenomenon was reproduced in my presence, but with less light—quite sufficient, however, to see everything and every movement distinctly. The box slowly, and without any apparent jerking, followed the medium's fingers. I saw the box slowly displace itself, and drag itself over a plush covered table, for a distance of nearly five inches. There was absolutely no contact of any kind whatsoever, either mediate or immediate. A strong gastric attack, quickly over, seized the medium after this experience.'"

In considering the validity of the evidence of this rare and startling phenomenon, we must recall that all the testators are men of high standing and interested in the pursuit of the study merely out of intellectual curiosity. The medium himself has no further interest, not being at all professional,

other than learning what strange powers he may be possessed of withal, and giving his sittings exclusively to the private purposes of his learned friend, Dr. Maxwell. Professor Richet, of course, is known the world over as a standard authority in psychology and one of the most acute investigators. Nevertheless, we must allow for excitement, delusion, hallucination, and over-eagerness to accept what phenomena may be presented. I cannot but feel, however, that such considerations are rather trifling when we remember the participants in this investigation.

Perhaps as much cannot be said for the next illustration I am going to present, because of the fact that the alleged medium has so often been criticised for her fraudulency. Eusapia Paladino was at one time a name to be conjured with. Her fame spread rapidly all through Europe, and was maintained for a generation, till suddenly Dr. Hodgson and the English Society for Psychic Research discovered her trickery and cast her off as unworthy. Nevertheless, soon after, she was again examined under the most trying situation, apparently every opportunity for fraud safeguarded against, and still the marvels were as easily performed as when done by trickery. Thus her reputation was rehabilitated, and would doubtless have so continued had not a recent exposure (May, 1910) in the United States cast a gloomy cloud over her closing career.

Yet in spite of these facts the incident I am now to narrate occurred under the eye of Camille

Flammarion, who was fully acquainted with her trickfulness, and, as he asserted, had thoroughly guarded against its possible intrusion in the game. He believes that this phenomenon was absolutely genuine, and stakes his reputation on it.

It was in the afternoon of November, 1898, when Flammarion, his wife and Eusapia had returned from a drive and were chatting in the house, Eusapia feeling especially fine, singing songs, accompanied by Mrs. Flammarion, and reciting incidents of her life. She declares she is so full of the "psychic force" that she frequently hears it crackling from her hair and sees it escape from the tips of her fingers. She tries to get Flammarion to observe a tiny flame sparkling between her finger tips when she places them on his knee, the fingers of each hand facing each other, but after various attempts in different degrees of light Flammarion fails to see anything, although Mrs. Flammarion thought she did.

After chatting leisurely for awhile Flammarion thinks he would like to undertake the experiment with Eusapia that de Rochas said he succeeded with, and asks her if she remembers having made a letter weight, like the one he shows her, having brought it with him for the purpose, "move downward on its spring by placing her hands on each side of it, at a distance, and making something like magnetic passes." She fails to remember ever having done that for any one, but is willing to try. Her first attempt fails. She then grasps Flammarion's hand and together they make the

passes, when he says, "to my amazement (for I was really not expecting it at all), the little tray sinks down to the point where it touches the lever and produces the sharp sound of contact. This point is beyond the graduation of the scale, which stops at fifty grams. The tray rises again. We begin the second time. Nothing. A third time: the same lowering and the same return to equilibrium. Then I beg her to try the experiment alone. She rubs her hands together and makes the same passes. The letter weigher goes down to the same maximum point. We are standing close by her in the full light of the Auer burners. The same performance is repeated, the tray remaining down for an interval of about five minutes. The movement does not take place at once; there are sometimes three or four trials without success." The waiter passing with some refreshments, Flammarion asks him to stop and observe; the performance is repeated full seven times to the astonishment of all. Flammarion remembers that Eusapia was caught placing a thin hair of her head on the scale; suspecting this, he passes his hand between the fingers of both her hands, but can detect nothing. Thinking that it might be an electric force in operation he causes her to place her fingers on an extra sensitive compass. But grasping it as she may she cannot cause the needle to move.

We must admit that either Flammarion is wholly deceived, under an hypnotic spell, or is utterly untruthful, unless we concede that notwithstanding the oft exposure of this medium, in this instance

he actually observed the transference of an unknown force proceeding from the fingers of Eusapia causing the depression of a weight.

It would seem, then, that a sublimate, ethereal substance passes from the physical body of the medium, capable of resisting a denser, visible, material substance. That it seems to be more of the nature of a force than a substance, or at least of a force that reveals itself in an unknown subtle substance, is apparently shown in the luminosity and volatility of its manifestations.

Dr. Maxwell made a protracted and cautious study of a so-called effluvium which he detected passing between the fingers of numerous persons with whom he experimented. He claims to have cautiously avoided everything in the nature of a suggestion to the subjects of what was to be expected; then placing them in the proper positions, with their fingers opposite each other in either hand, he says: "Three-fourths of those with whom I experimented perceived a slight mist passing from the tip of one finger to the corresponding finger on the other hand. I myself perceive this mist very plainly; to me it resembles cigarette smoke; it has the same greyish color, the same appearance, but much more tenuity. The majority of people see it in this way, but I have met with some who fancied they saw it in colors. . . . On the whole, from the experiments I have made, I reckon that out of 300 people of both sexes, 240 to 250 perceive the effluvium; 2 to 3 out of 100 see it as blue. I have found two who saw it as yellow; and one who saw it as red."

Dr. Maxwell claims he operated quite differently from de Rochas and Reichenbach, who experimented with subjects asleep or in the dark. "My conditions of experiment were very different. I took the first comer and operated in broad daylight. But my observations tend to confirm theirs, at least in what concerns the radiation of something from the finger ends."

He found one exceedingly interesting subject. He claimed to see the effluvium escape from the hands of the sitters and spread itself over the seance table. Trying to find out just what this subject could detect, he caused all the lights to be put out. "The sensitive quickly recognized the finger tips, claiming to observe a kind of milky phosphorescence at the spot where my finger was. To make doubly sure I tested him still further by tracing letters on the table with the tip of my forefinger, taking the precaution to avoid all sound. The medium read nearly all the letters drawn. I then traced some words; he read them off also. I was able to make him read words of five letters; he was not able to read longer words, he recognised the last letters, but declared that the first were blotted out. Nearly all the words of three or four letters were read correctly."

This substance seems capable not only of escaping from the finger tips, but becomes independent and floats in different shapes in the air,—if we are to believe the witnesses. They float about the room, up and down, lasting for several seconds. They give representations of objects or of human forms.

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"At Bordeaux, in 1897," says Dr. Maxwell, "we again saw black, opaque forms under excellent conditions. . . . We all saw these forms, or rather the form; for it always was the same form which was shown, the profile of a long-bearded face, with a strongly arched nose. . . . It is an extraordinary phenomenon; and the first idea which presents itself to the mind is that of collective hallucination." This view Maxwell rejects, however, as he thinks the conditions warrant.

Maxwell gives a very interesting experience in which one of these forms seems spontaneously to have developed before him through the instrumentality of a young medium. No seance was being held.* Looking up the medium said he saw on the wall the word *curtain* traced in luminous letters. He also declared he saw some personifications. Not knowing the meaning of the word, he was about to drop the matter, when Maxwell, thinking he discerned an activity present, asked him to continue to look. Maxwell at once improvised a "cabinet" by arranging some coverings in the back of the room. "In a short time we heard raps on the table, the medium's chair, the floor, and on the wall inside of the cabinet. The medium, interested, turned half way round toward the cabinet, when all at once, after the production of some very faint, flitting lights, I perceived the beautiful face of a woman, pale, the eyes upraised, as if in prayer. The eyes and the hair were black; the hair was parted in the centre and dressed in the style of

*P. 153.

fifty or sixty years ago. The face was draped in a white vail, which also covered the head, forming a kind of frame for the face. The physiognomy was of the sweetest and of rare beauty. The apparition appeared to be slightly luminous, of a whitish milky hue. It showed itself to the left of the medium, but high above him, near the ceiling."

Lombroso speaks of similar floating luminous clouds and half-shaped forms appearing in the Paladino performances, often before the full forms appear. He refers to these as "phosphorescent clouds floating over the head. . . . and issuing from the abdomen . . . luminous bands and striations (taking shape in the form of spectral figures) . . . lights in the form of stars and of globules from 60 to 70 centimetres in diameter, which do not burn and do not illuminate, which rise slowly, descend rapidly, frequently traverse space with rapidity, and are sometimes azure, sometimes green or yellowish, and respond at times to raps and frequently govern their movements as if intentionally, seeming as though they were projected and directed by a conducting wire, appearing at given hours for many years in succession without any influence exerted on them by the medium and always moving from one point to another in equal times and in a true intentional direction."*

All of these Lombroso and many other scientific experimenters of Italy and elsewhere claim to have witnessed time and time again through a series of

*"After Death—What?" pp. 188, 9.

years. If these witnesses are to be trusted, then we must admit that whatever this substance is, it possesses a volatile, formative nature, like that of a vapory cloud, but wholly different in quality.

Whatever this force, fluid or substance may be, it appears to possess a form and degree of energy different from that of the known forces of nature. For instance, here follows an experiment which Dr. Ochorowics, a highly intelligent, scientific and cautious investigator, undertook, to test the strength of this force with Eusapia. "Two deep and narrow cigar boxes were placed under the table, and Eusapia put her unshod feet within them. The boxes had double bottoms and were provided with an electrical arrangement of such a nature that she could move her feet freely for some inches in every direction; but, if she wished to withdraw them from the box, the electrical bell tinkled before she had moved them half way to the top, and only stopped when they were returned to their place. Eusapia cannot remain utterly quiet during the seances; so she was given a certain freedom of movement; but it was impossible for her to make use of her legs for lifting the table. Under these conditions the table, weighing twenty-five pounds, rose up twice without the bell being heard. During the second levitation the table was photographed underneath.*

Lombroso vouches for the following incidents as illustrating the power and nature of this force, so utterly different from any other force with which

*Flammarion: "Mysterious Psychic Forces," p. 164.

we are acquainted. He says that on several occasions not only was the table of considerable size levitated far into the air and remained there long enough to be photographed, but that on several occasions the medium herself, while in a trance and seated in a chair was bodily lifted to the top of the table, and both together were then lifted into the air, remaining there some seconds, without the assistance of any human hands; thereafter the medium was again lifted from the table and deposited in her chair safely and slowly on the floor. Sometimes phenomena will follow certain caprices of the sitters. One evening Eusapia was asked to produce on the seance table a trumpet which lay on a chair in the corner of the inner cabinet; and "while we were looking at Eusapia sitting there motionless, we heard the little trumpet fall to the floor, and then for several minutes we heard it moving lightly along, as if a hand were grazing it without being able to grasp it. One of the experimenters held out the interrupters (or cut-offs) of the electric lights intrusted to him, toward the cabinet, about six feet from Eusapia, and said, 'take them.' They were at once taken out of his hand, and several metres of the cord to which the cut-offs were attached slipped through his fingers. He pulled the cord to him forcibly and felt an elastic but strong resistance. After a brief and gentle pull he exclaimed, 'Turn on the lights,' and one of them was turned on!"

Commenting on the curiously strange powers of which the medium seems to become possessed during

trance, or which possess the medium, Lombroso says: "It is noteworthy that motorial and intellectual powers are manifested in the psychic trance which are very different from and much greater than the powers of the medium, and wholly incommensurable with these, and lead to the supposition of the intervention of another intelligence, another energy."

"Thus, in respect to muscular energy, we have seen . . . the dynamometric force of Eusapia, corresponding to 36 kilograms, increased in full light by the aid of the fluidic arm, which she said was that of John, to 42 kilograms . . . In the seance with Morselli at Genoa the medium's force registered on the dynamometer reached 110 kilograms, and in a sitting in Turin, John developed force sufficient to break a table—a force which we estimated at being at least 100 kilograms. And we may with certainty estimate at 80 the energy necessary to lift a table with the publisher Bocca seated on it, and at a much larger figure the dragging along for several seconds of Botazzi and his chair, weighing both together 93 kilograms."*

If these testimonies be true, we shall have to acknowledge that the so-called psychic force, or substance, is capable of exerting an expression of energy not only wholly different from that of the normal human body, but far in excess of it.

Again, it seems to possess the power of freeing itself, temporarily, from the animal body, while still alive. There have been of recent years experi-

*"After Death—What?" pp. 167, 168.

ments in what might be called the telepathic creation of ghosts. A person will to himself wish to be seen by another at a distance, and as if by magic the other will behold the vision. Just what it is that passes from the one to the other is of course the crucial problem.

The late Edmund Gurney experimented successfully with an especially good subject, Zillah, a maid servant in the employ of Mrs. Ellis. The maid was hypnotised and given the suggestion that she should see an apparition of Mr. Gurney at 3 P. M. the following day. On that day Mrs. Ellis wrote the following letter to Mr. Gurney:

“As I suppose you gave Zillah a post-hypnotic hallucination, probably you will wish to hear of it. I will give you the story in her own words, as I jotted them down immediately afterwards—saying nothing to her, of course, of my doing so. She said: ‘I was in the kitchen washing up and had just looked at the clock, and was startled to see how late it was—five minutes to three—when I heard footsteps coming down the stairs—rather a quick, light step—and I thought it was Mr. Sleep’ (the dentist whose rooms are in the house) ‘but as I turned around, with a dish mop in one hand and a plate in the other, I saw some one with a hat on, who had to stoop as he came down the last step, and there was Mr. Gurney! He was dressed just as I saw him last night, black coat and grey trousers, his hat on, and a roll of paper, like manuscript, in his hand, and he said, ‘O good afternoon!’ And then he glanced all around the kitchen, and he glared at me with an awful look, as if he was going to murder me, and said, ‘Warm afternoon, isn’t it?’, and then ‘Good afternoon’ or

'Good day,' I'm not sure which, and turned and went up-stairs again, and after standing thunder-struck a minute, I ran to the foot of the stairs, and saw like a boot just disappearing on the top of the step.' She said, 'I think I must be going crazy. Why should I always be seeing something at three o'clock each day after the seance? But I'm not nearly so frightened as I was on seeing Mr. Smith.' She seemed particularly impressed by the awful look Mr. Gurney gave her. I presume this was the hallucination you gave her."

This is a remarkably clear demonstration of the power of one mind to impress itself dramatically on the mind of another, and it is commonly explained as an operation of telepathy; but it must be confessed it is difficult to determine, if not at present impossible to decide, just what it is that appears. Does the thought emanating from the operator merely affect the brain of the subject so that the vision in the mind of the operator appears as an objective hallucination to the subject, or does the thought force somehow envelop itself in a substance, and assume material though sublimated form, as is alleged to occur in materialisations? Do we yet know just what telepathy is, and are we not using a term too freely to explain what we cannot understand?

This may be seen a little more clearly in the case of the hallucination reported by Dr. Hyslop. In 1907 Dr. C. W. S. was sleeping soundly one Sunday in a hotel in Buffalo, N. Y. He suddenly awoke with the impression that there was some one in his bed-room. Becoming wide awake he soon

saw that his wife was standing at the foot of the bed. He said, "What are you doing?" She replied, "I came to see about you." She then went up to him and embraced him and suddenly disappeared. He leaped from his bed; seeing the room was dark he lit the gas. He was so startled he telegraphed his wife and received a reassuring wire in response. He returned to his home in New York after a few days and soon was surprised to find his wife inquisitive about whether he had slept well Sunday night. Then she told him her story. She had read in one of Thomas Jay Hudson's books that if one on falling asleep should think hard of what one wished, the thing would come to pass; that if one would want another at a distance to see one, one need but think of it on falling asleep. So she tried the experiment and was naturally curious to know whether it had worked. She says she thought very long and hard that her husband would see her in his hotel. She was delighted, notwithstanding she had caused him some consternation, to learn that the experiment worked so well.

But strange to say, although she tried the trick afterwards on several occasions she never again succeeded.*

It may, then, be an open question whether the thought succeeds only if it is capable of being enveloped in a sublimata or ethereal substance by which it becomes manifest, or whether it merely operates on the mind through the agitation of certain etheric waves.

*"Journal of American Psychology," 1907.

Aksakoff gives a most startling case, illustrating the probability that the thought actually embodies itself: "A man named Bening was to give a lecture at T——. Not being able to send word in time that he could not go, he sent his double. This entity arrived at the Club, made the signals agreed upon, said in low tones that he was not coming any more and, when they were going to stop him while going down stairs, he sent his persecutors about their business with a couple of boxes on the ears, and disappeared. The matter was taken into court, but afterwards dismissed."*

If we can permit ourselves to accept such a story on any evidence, then we must conclude it is perhaps a more convincing hypothesis that the thought of the lecturer embodied itself in some form and was thus seen by the entire audience as if real, than that a single thought could create by merely mental action an hallucination so complex as to involve an entire audience.

Again we shall see that what we call the soul-substance, or psychic force, is apparently capable of conveying intelligence independent of the brain of the body, or at least through an action of a brain that is passive or beyond the pale of its normal faculties. That two brains should act one upon the other, separated by many hundreds of miles, and yet that both brains should be affected by a force wholly outside the consciousness of either is, of course, an experience that suggests an unknown force, or an invisible presence passing from the one and acting on the other.

*"After Death—What?" Lombroso, 251.

I am not at present attempting to explain anything, but merely seek to array a series of phenomena that apparently compel us to recognise an extra normal force or substance acting on the human intelligence. Here, for instance, is a well authenticated case, quite as interesting as suggestive.

Mr. W. H. Shrubsole had a son sixteen years of age, who was an apprentice on a British barque. One night Mr. Shrubsole awoke suddenly from sleep and distinctly saw the upper half of his son's body stretched out on his back on a flat surface by his bed-side. He was dressed as usual, but was apparently suffering great pain. His features were very distinct. Although the boy lay close to his father, the latter seemed utterly unable to help him. Consequently the father suffered extreme distress. The figure slowly faded away, then soon after reappeared, but in another part of the room. The case was examined by the S. P. R. and reported in its Journal of June, 1895. Mr. Shrubsole, explaining the experience, wrote as follows:

"The consciousness of inability to relieve continued to possess me till the vision faded and I fell asleep. On waking in the morning I had a clear recollection of the painful vision, and for weeks I could not shake off the impression that my son had sustained some serious injury. At last, to my great relief, a letter came from him to hand. In it was narrated rather briefly how he had fallen to the deck in consequence of the breaking of a rotten rope on which he was hauling, and that in consequence he was totally helpless for more than a week. I had not recorded the exact date of the vision, but as nearly

as I could make out at the time of the reading of the letter, the date corresponded with the accident. On his return home I eagerly asked my boy for the particulars of the occurrence, taking care not to put leading questions, and to keep him ignorant of my experience till he had told me all. I learned that he was stunned by the concussion and that the first thing he was conscious of was that some persons were lifting him up. Finding him helpless, they laid him down again on the deck. The captain presently came and asked him if any bones were broken, to which he could only indirectly reply. Then the captain told some one to draw him to one side of the deck, and said that he would come all right in a few hours. The poor lad laid there without attention until some sympathetic member of the crew carefully lifted him from where he was lying and carried him to his bunk in the deck house, where he lay for eight days. Making further enquiry, and taking the chronological difference into account, I found that the accident happened at an hour when I am usually in bed. Having thus stated the facts, I direct attention to the coincidence (1) in time of the accident and my consciousness of it, (2) that my son lay for some time at two different places, and that the apparition was thus seen by me, and (3) that he felt most pain in his head and the upper part of his back, and this was evident to me at the time."

While it was discovered that there was a slight difference in the longitudinal reckoning, yet it was learned that unequivocally the intelligence came to Mr. Shrubsole long before the accident could have been heard of by normal means.

Here it is explained by some that the sub-conscious mind of the boy in the throes of his misery

wandered to his father and informed his sub-consciousness of the suffering of his child, and that, awakening, the father saw the transaction as an hallucination. Yet again, I ask, if it is not just as reasonable to surmise that the energy of the thought or desire, the strong impulse of the fervid emotion as it burst from the suffering body of the boy, might not have assumed a positive shape, out of the subliminal substance of the ether, and have for an instant revealed the actual bodily suffering of the lad to his father?

As far as we can at present see into the laws of nature the latter is as possible as is the former.

Another classical incident of this kind, which was authenticated at the time, is recorded by Dr. Abercrombie as follows.

He said that the Rev. J. Wilkinson, a dissenting minister at Weymouth, England, sent him the following description of a dream he had about his mother:

“One night, soon after I was in bed, I fell asleep, and dreamed I was going to London. I thought it would not be much out of my way to go through Gloucester, and call on my friends there. Accordingly I set out, but remembered nothing that happened on the way, till I came to my father’s house, when I went to the front door, and tried to open it, but found it fast. I then went to the back door, which I opened and went in; but finding all the family were in bed, I went across the rooms only, went up-stairs, and entered the chamber where my father and mother were in bed. As I went to that side of the bed in which my father lay, I found

him asleep, or thought he was so; then I went to the other side and just turned the foot of the bed. I found my mother awake, to whom I said these words: 'Mother, I am going on a long journey, and I am come to bid you good-bye.' Upon which she answered me in fright, 'O my son, thou art dead.' With this I awoke, and took no notice of it, more than a common dream, only it appeared to me very perfect, as some dreams will. But in a few days after, soon as a letter could reach me, I received one by post from my father, upon the receipt of which I was a little surprised, and concluded something extraordinary must have happened, as it was but a little before I had a letter from my friends, and all were well. Upon opening it, I was more surprised still, for my father addressed me as though I were dead, desiring me, if alive, to write immediately; but if the letter should find me living, they concluded I should not live long, and gave this as the reason for their fears: That on such a night, naming it, after they were in bed, my father asleep, and my mother awake, she heard some one try to open the back door; which he opened, came in and went directly through the rooms up-stairs, and she perfectly knew it to be my step. I came to her bedside and spoke to her these words: 'Mother I am going on a long journey and I am come to bid you good-bye.' Upon which she answered me in fright, 'O my son, thou art dead!' which were the very words and circumstances of my dream; but she heard nothing more, and saw nothing; neither did I in my dream, as it was dark. Upon this she awoke my father, and told him what passed; but he endeavored to appease her, by persuading her it was only a dream; she insisted that it was no dream, for that she was as wide awake as she ever was, and had not the least inclination to sleep since she was in bed.

From these circumstances I am apt to think that it was the very same instant when my dream happened, though the distance between us was a hundred miles; but of this I cannot speak positively."

Here there was evidenced a clear communication between two minds, operating through the unconscious agency of a dream, by which not only intelligence, impossible through the normal agencies, was conveyed a hundred miles away, but through which an hallucination was seen. The question is, what was the real agent in the matter; was it merely the operation between the unconscious elements of two distant minds, or is it possible that through the action of the unconscious element operating in the dream, the thought-force, or mental image, in transference, aggregated to itself some form of matter in which it made itself manifest to the normal vision of the dreamer's mother?

CHAPTER XX

SPIRIT-FORMS AND MATERIALISATIONS

That the mysterious agency, operating in occult phenomena, seems to be a distinctive force, capable under certain circumstances of being emitted from a human being, and not merely a mental expression, is apparently illustrated by a number of phenomena. Thus far we have especially directed attention to its action in some form of intelligence, or as a mode of thought. But now I would call attention to an effect alleged to have been produced in the presence of a number of scientific experimenters which would indicate the blind action of the force, and seem to correlate it with the well-known physical forces. In one of the Paladino seances there was a circle of ten persons around the table. Eusapia had her back turned toward the curtain of the cabinet; she was controlled by General Starynkiewics and Dr. Warraszewski. At a certain juncture, writes Glowackiprus:

"I was seated opposite Eusapia, near Mlle. X., a very nervous person and easily hypnotised. The seance had lasted for about a half an hour, with numerous and varied phenomena. Eusapia, as always, was in a semi-conscious state. Suddenly she awoke, and Mlle. X. uttered a cry. Knowing what this cry meant, I grasped her hand with great force, and then put my arm about her; for this girl became very strong in certain states. The room was well lighted, and this is what we saw (something be

it noticed which I myself experienced by my hands). Every time that the muscles of Mlle. X. became more tense and rigid, the curtain which hung opposite her, at a distance of from seven to ten feet, made a movement. The following table indicates the details of this correlation:

Feeble tensions of the muscle—the curtain is set in motion.

Strong tension . . . It bellies like a sail.

Very strong tension, cries. . . . It reaches as far as Eusapia's controllers, and almost wholly covers them.

Repose. . . . Repose.

Tension of the muscles. . . . Movement of the curtain.

Strong tension. . . . Strong inflation of the curtain."

Here it must be noted there is no occasion to call in the action of the mind, for the manifestation is purely muscular and mechanical, and cannot be said to have been the result of expectation, or hypnotic control. It came as a surprise to the gentleman who sat next to her, and from the hysterical subject at his side. True, it was manifested through a hypnotised, or semi-hypnotised, subject, which, however, merely shows that the force is apparently emitted through the agency of the subconscious mind, or during the period that the conscious mind is in suspense.

It seems that the correlation of delicate muscular action on the part of the medium and the mechanical expression of this force has been frequently observed. Lombroso speaks of his experimenting with Eusapia, asking her to bend her thumbs

and witnessing the effect on the apparition or upon a physical object; and that the muscular effect always seems to take effect on the opposite side of the muscle contracted. This was accomplished by merely the bending of the thumb-knuckle, or contracting of the palm.

The author of "Metaphysical Phenomena,"* on this point, says: "When experimenting with Eusapia Paladino, Professor Richet had remarked and called attention to the synchronism which existed between her phenomena and her movements or muscular contractions. Dr. Maxwell, in his turn, also noticed it, and forthwith bent his studies in that direction. The conclusion appears to be evident that a profound and far-reaching importance lies in the synchronism between the movements of the experimenters and the phenomena. It was observed that Dr. Maxwell was able to produce phenomena of raps and telekinesis (of very feeble intensity, it is true) by tapping the medium on his hands or shoulder, by firmly squeezing the hands, joined in a circle above the table, or by the simple *contraction of his own muscles.*"

Again, we may observe, that the force or substance, or whatever it may be, seems to possess the power of aggregating to itself a form that doubles the physical presence of a person, and causes that semblance to appear side by side with the physical form. Such, for instance, is the case of Goethe, who, on retiring from a battlefield, and overcome with much emotion, says he saw riding beside him

*P. 274.

as distinct as his own body another that was the exact facsimile of himself.

George Sand, on one occasion, is said to have experienced a similar condition. "I was surprised," she said, "that some one was with me. Not seeing any one, I studied this prodigy with immense pleasure. I marveled at hearing my own name, coming *from my own voice*. The strange explanation came to me that I was double—that there was another 'I' about me that I could not see, but which always saw me. I told it to come, and it replied, 'Do thou come.' And it seemed to me to draw back and to approach when I changed my position."

It is possible, of course, to construe such apparitions as mere hallucinations, and pass it at that without undertaking to learn what the actual nature of an hallucination is. But it is that very point which I desire to investigate a little more fully, and for that reason I am presenting this varied series of experiences, which seem to be accepted as historical and viridical. It is because it seems to me science is about ready to demonstrate the nature of these hallucinations, and establish their substantial verity, which bears so closely on the subject of the possible after life, that I believe the matter is of growing interest to rational and unemotional thinkers.

Many cases are on record to show that this force or substance can both penetrate and see through opaque substances. I take a well-authenticated case which came under Dr. Quackenbos' observation and study, as reported in his "Hypnotic Therapeutics." A peasant girl of twenty-three years,

of Southern Germany, was brought to his office. The girl was accompanied by her master, who threw her into the hypnotic state, which Dr. Q., by various tests, satisfied himself was genuine. Neither this girl nor her employer had ever been in the house before. She was then made to reply to the following questions, after being ordered to send her "spirit" through the house. It passed two flights of stairs, entered a front room with alcove:

"What do you see?" "A round table with books." (The table stood in front of the door and would naturally attract immediate attention.)

"What else do you see?" "A large picture of a lady on the wall." (My wife has an engraving of a Raphael Madonna over the mantel and three other pictures.)

"Describe them." "One picture is of a horse." (This answer I regarded as an error; but a subsequent inspection of the room disclosed on the mantel shelf, under the Madonna, a small photograph of one of my horses, sent to the house a day or two before, and placed there inadvertently by my wife.)

"What else do you see?" "Seven chairs." (No member of the family was aware that there were so many chairs in the room.)

"Is there anything else in the room you would like to speak about?" "Yes; a bed with a little darling."

"Do you mean a doll?" "No; a real live darling."

"Describe her?" "She has light hair, and is pretty."

"How old would you say she is?" "Eight years." (The exact age of my little daughter Kathryn, who was asleep in the alcove.)

Dr. Q. had many more sittings with the girl, in the presence of highly intelligent and distinguished visitors, and the girl always revealed this wonderful power of seeing through opaque objects, or, as some would say, of penetrating them with her psychic force or "spirit."

Cases of this class might easily be explained on the theory that a hypnotic subject is in immediate and sympathetic communication with the mind of the operator, and therefore easily discerns what buried or superficial data may exist there. But there is another class of clairvoyant phenomena not capable of being so readily explained. I refer to discernment of things that are not possibly in the mind of any one present or known to the clairvoyant. A number of such cases is given by Dr. Maxwell in "Metaphysical Phenomena."*

His friend Dr. X. once gave to a lady cashier in a restaurant where he was wont to take his meals a crystal. Instantly, as she looked into it, she said she saw the form of a dog. But as it was a dog she had never before seen, she had no further interest in it. Yet, several days after, Dr. X., again entering the restaurant, was surprised to be informed by the cashier, she had in the meantime been presented with a dog of which the dog in the crystal vision was the exact image.

*P. 220.

Here is another case he gives. "Another lady sometimes sees visions in a mirror. She saw a man seated on a footpath of a certain street; the man was wounded in a particular manner on the forehead; a piece of skin was torn away and lay over the eye. Among other details about the costume was a sack, which the man had rolled around his neck; on the sack the letters V. L. were printed. The lady in her vision saw herself speak to the man, take him to a hospital and have his wound dressed. On the morning of the next day she went out, met the wounded man at the spot she had seen him the day before, and her vision came true to the letter, even to the detail of the sack around the neck, and the letters which were printed on it."

In this case and similar ones, which seem to be quite numerous, the field of clairvoyant vision apparently extends far beyond the field of immediate consciousness, either of the clairvoyant or of any one associated with her. But a still more puzzling series of clairvoyant visions are those that are apparently of a prophetic nature and permit the person to see events which have not yet occurred. Here is an example of such cases, given also by Dr. Maxwell in his book:

"A sensitive perceived in a crystal the following scene:—A large steamer flying a flag of three horizontal bands, black, white and red, and bearing the name 'Leutchland,' navigating in mid-ocean; the boat was surrounded with smoke; a great number of sailors, passengers and men in uniform rushed to the upper deck, and the sensitive saw the vessel founder. Eight days afterwards the newspapers an-

nounced the accident to the 'Deutschland,' whose boiler had burst, obliging the boat to strand. This vision is very curious, and as the details were given to me before the accident, I will analyse it carefully."

Dr. Maxwell goes on to explain that the boat did meet an accident as described, but it did not founder; yet in all other particulars, saving the spelling of the name of the boat with an L instead of a D, the account was most accurate. He also assures us that the sensitive had no relationship with Germany or Germans whatsoever and did not even know that there was a ship afloat by the name it bore. But the most curious feature of all and the one that gives us more serious concern is that it foresaw so many days ahead what substantially afterwards occurred.

The action of this force seems to be in many ways in contravention of the tendency of the well-known forces of nature. It opposes gravitation as in the many cases of alleged levitation, some of which I have already called attention to, notably the levitations and floatings of the entire body of D. D. Home, the medium who so startled Crookes and other investigating scientists.

The last but one characteristic to which I shall at present call attention is the fact that this so-called force seems to be susceptible of impressing itself on the sensitive plate of the photographic camera and thus leaving with us ocular and tangible evidence of its substantial existence. This fact, of which we shall here present some of the alleged evidence, would seem to indicate that the so-called

force in some way under certain conditions embodies itself in some sort of matter.

Here is a case that Lombroso cites, which may be taken as typical of those procured from professional photographic-mediums. As, however, this alleged photograph was procured by the first of this class of mediums, whose power is said to have been divulged to him unexpectedly, it is possible that it may be trusted as genuine more than the average.

The publisher Dowe had employed a young woman, to whom he was much attached, and who died at the age of twenty-seven. Seven days after her death a "psychic" informed him that a beautiful girl in the spirit wished to see him and that she held a rose in her hand for him. A month afterwards, at Saratoga, he made the acquaintance of another psychic who had never seen him before. As soon as she had touched him she wrote on the slate, "I am always with you" in the handwriting of the girl. When he returned to his home in Boston he visited a medium, Hardy, who caused the apparition of the girl to appear again, saying that she would like to give him her photograph, asking him to go to Mumler, the first of those photographic mediums, and then very famous. He goes to Mumler, but introduces himself as "Johnson." Immediately the apparition appears and says, "How do you do, Mr. Johnson? I never knew before you were ashamed of your name."

Mumler did not at first succeed in getting the picture of the girl, but when his wife assisted him

by going into a trance, Dowe says he procured the picture of the girl precisely as she had described it to him in the seance. Commenting, Lombroso* says: "The foregoing is the case of one who was in fact a skeptic as to spirits and distrusted the photograph. I selected this from among the photographs of Mumler because, inasmuch as legal proceedings were instituted against him, I wished to exclude those that were not very thoroughly established by documentary evidence and that were secured when doubts about him were most rife."

However, while there is a large number of testimonies as to the genuineness of "spirit" photography, we feel a natural disposition to question it unless it is verified by the most unqualified and unquestionable evidence. There happens to be, perhaps, but one such case in all the array of alleged genuine photography, at least of sufficient importance to call for consideration in a scientific investigation of the problem we are discussing. I refer to the declaration of Sir William Crookes, that he positively took such a photograph, not only once, but many times, and under the most exacting and precautions conditions. I am merely referring to the claim that "spirit" photography is not only possible but reliable, in order that I may include in the category of incidents to be discussed the entire series which are claimed to be genuine by advocates of the occult. My object is to see whether there is a scientific interpretation to be put on them, consonant with the present knowledge of natural laws,

*"After Death—What?" p. 263.

and to discuss what bearing they may have on the problem of the after life. I will give the efforts of Crookes to procure the alleged "spirit" photograph in his own words, as recorded in his "Researches in the Phenomena of Spiritualism." ("Katie" is the spirit form he beheld at intervals for three years.)

"During the week before Katie took her departure she gave seances at my house almost nightly, to enable me to photograph her by artificial light. Five complete photographic apparatus were accordingly fitted up for the purpose, consisting of five cameras, one of the whole-plate size, one half-plate, one quarter-plate, and two binocular stereoscopic cameras, which were all brought to bear upon Katie at the same time on each occasion on which she stood for her portrait. Five sensitising and fixing baths were used, and plenty of plates were cleaned ready in advance, for use, so that there might be no hitch or delay during the photographing operations, which were performed by myself, aided by one assistant.

"My library was used as a dark cabinet. It has folding doors opening into the laboratory; one of these doors was taken off its hinges, and a curtain suspended in its place to enable Katie to pass in and out easily. Those of our friends who were present were seated in the laboratory facing the curtain, and the cameras were placed a little behind them, ready to photograph Katie when she came outside, and to photograph anything also inside the cabinet whenever the curtain was withdrawn for the purpose. Each evening there were three or four exposures of plates in the five cameras, giving at least fifteen separate pictures at each seance; some of these were spoilt in the developing, and some in regulating the

amount of light. Altogether, I have had forty-four negatives, some inferior, some indifferent, and some excellent."

Unless we are to believe that Crookes had lost his mind, or was hypnotised into the belief that he was doing all this, whereas he was not, or that some fraud was worked on him by presenting as the "spirit" of Katie King a disguised human being, we must apparently admit that here is a genuinely scientific demonstration of the photographing of a figure which was not flesh and blood, but alleged "spirit," and which existed only for a temporary period. We have already referred to the extremely careful precaution Crookes took in all his experiments to avoid the possibility of fraud, and shall not here repeat the argument. We must not forget, either, that twenty-five years after he made these public statements, he said, in the presence of the highest scientific body in the British Empire: "I have nothing to retract. I adhere to my already published statements. Indeed I might add much thereto."

But on that occasion Crookes did say that if he were again to experiment he would probably begin with the theory of telepathy rather than with that of spiritualism. However, in altering his theory as to how he would account for the existence of these amazing phenomena, he did not for a moment allow that he doubted their genuineness or trustworthiness.

If, then, these apparitions can be photographed, we shall have to admit that they are more than mere

mental phenomena or hallucinations, or be forced to find some explanation in natural law that will show how a mere mental perception, or a thought, may so materialise itself as to impress a photographic camera.

One more series of incidents we shall refer to, to close this array of so-called occult phenomena, which must be proved either to be absolutely fraudulent and therefore non-existent in nature, or must be explained in accordance with the known or discoverable laws and principles of the universe.

The series to which I now wish to refer is that of apparitions which are said to have been seen at the moment of the decease of the human body. There is the well-known classic case of Lord Brougham's, who, discussing with a fellow-student the problem of immortality, excitedly agreed with him that whichever first died should appear to the other, and sealed the agreement with their blood. Years afterwards, the other having died, he appears to Brougham while in his bath and so excites and horrifies him that when he gathers himself up from the floor, on to which he had leaped from the bath tub in a spasm of terror, and for awhile lay sprawled in an unconscious fit, he observed that the form of his friend had disappeared. He had for years lived in India and had quite died out of Brougham's memory, as had the foolish youthful agreement.

One of the most interesting cases which I have ever heard or read I recently observed in an issue of "Light."* It is narrated by Mr. J. Page Hopps,

*The London Spiritualist Weekly, of May 14, 1910.

a Unitarian minister, and was told him by a highly-cultured and sincere woman. She was a school-mate friend of his in early years, whom he describes as "a woman most charming in mind, disposition and appearance, who married a gentleman of superior refinement and education." He suffered with asthmatic attacks, which grew more and more frequent. Both were members of the Presbyterian Church, devout and sincere believers in the after life. She seemed to have a more enquiring mind than her husband, wondering what the spirit form could be, tinged with some doubt, while he guilelessly believed it to be precisely as his imagination conceived. One night he was breathing more heavily than usual and she sat at his side for a long while, then comfortably arranged his pillows,—

"and ensconced herself behind a screen stretched across a corner of the chamber, where with a lamp and a book, she occupied herself with reading. . . . Some time after, as the light peeped into the windows, she closed her book and turned back a leaf of the screen, intending to step noiselessly from the room. One glance at the beloved form arrested her attention. There he lay, prone and pale, the body of her husband. But above it, a few inches, extended an ethereal form, a perfect counterpart of that which lay below—but oh! so ethereal—so shadowy! The head was slightly raised above the body and limbs, which showed with less distinctness. Turned directly toward her, the face, sweet, reposeful, intelligent, earnest, was alight with consciousness and affection. I shall never forget my friend's vivid description of this scene. . . . 'You know me well enough to believe,' she said, 'that I could not

be deceived. I am not a nervous or an imaginative woman. I was never subject to hysteria or delusions; am seldom ill, and am believed to be well balanced. Yet here I, who never knew such an occurrence was possible, saw the spiritual body of my husband, and saw, too, by his earnest look, that he wanted to give me assurance that he still lived. I moved my head from side to side; his look followed mine. Feeling it most important not to be self-deceived, I counted my pulse, which was normal, and walked from my corner of the room to the other. Still that head and form remained as I had seen them. Then I said: 'Edward, I see you and realise all you would have me feel. You still live and remember what we said about death. Bless you! I am convinced and comforted.' With a last longing look into his dear face, I went to call the family. On my return there was only the poor, pale, discarded body of my husband. Yet my heart sang a paean of joy; for I knew then without a tinge of doubt that he was past all pain, and that he was still the same true and noble soul who had won my youthful heart. From that time all through the obsequies and burial I could not shed a tear. Perhaps my neighbors thought me unfeeling.' "

And Mr. Hopps remarks that his friend remained comforted through the remaining years of her life. While expressed with much emotion none can be surprised that the apparition left the impression on the woman that it did and that she felt absolutely convinced that she had actually seen the spiritual body of her deceased husband.

Did she, is, of course, the question. Are these apparitions after all mere hallucinations, easily explained away by the theory of telepathy, the

transference of thought from mind to mind, co-operating with the imagination of the recipient mind, and thus building up a dramatic vision of a fantastic world? Is it not incumbent on us to know more of the actual nature of thought, of the possibilities of mental energy, of the creative potency of the imagination, when operating on the plastic substance of the ether, before we finally conclude that the visions and apparitions are merely fantastical, the futile figments of a heated brain?

Have we not been too easily captured by so plausible a theory as telepathy, without having paused long enough to satisfy ourselves whether there must not be some substantial element which forms the nexus between different human minds, on which the telepathic energy impinges; and whether that substance when so operated on is not susceptible to such condensation and transformation as may cause it to be organised into the things we call apparitions, yet may be objectively as actual as the material human frame? In short, has science gone its entire length when it satisfies itself that there is a law of thought-transference, which operates consciously or unconsciously between human minds, unconnected by any visible material bridge, whose operation deceives one with the notion that one is beholding ethereal, yet visible, forms shapen like to the human form?

This is the problem to which we shall now undertake to address ourselves.

BOOK II
SCIENTIFIC INTERPRETATION

CHAPTER XXI

INTERPRETATIONS AND EXPLANATIONS

To enumerate, then, the special phenomena manifested by the action of the so-called psychic force, we have in the previous chapter presented the following phases:

(a) It manifests itself through the means of a substance which is ultra-refined, sublimate and usually invisible.

(b) It causes this substance to be revealed at times in volatile and ephemeral form.

(c) Its momentum of energy is far in excess of that of visible material substance or of the energy ordinarily released in organised living bodies.

(d) It can cause this substance to free itself temporarily from the human body and manifest an intelligence independent of the conscious control of the brain of the physical organism.

(e) It has the property of conveying intelligence from one brain to another without the conscious operation of either brain.

(f) It can cause the substance to penetrate opaque, physical bodies, contrary to the known laws of matter.

(g) It has the capacity of discerning objects through solid substances.

(h) It can organise this substance within a living body and then transport it beyond the body to distant places.

(i) It can cause this sublimate substance to reveal itself as an ethereal fac simile of the physical body and remain outside of it as a distinct double.

(j) It can present the ethereal form at the moment of death manifesting itself above the deceased body, and even slowly forming itself from the body as it expires.

These are but a few of the startling claims which are set forth as possibilities of this strange force, but the rest may be easily classed within this category. How has science thus far attempted to explain them? It asserts, if it is willing to admit the verity of the phenomena, that when properly understood all may be explained by the action of telepathy through the agency of the sub-conscious mind.

It is now generally admitted that telepathy has been scientifically demonstrated; that is, the transference of thought from one mind to another is now generally accepted. But it is not quite so generally believed that the operation of this force attains its maximum when the normal action of the mind is held in suspense and the extra-normal or sub-conscious plane is functioning. Let us for a moment dwell upon these two points; first, that thoughts are constantly transferred without a visible instrumentality from mind to mind, and second, that when the normal mind is in suspense then the power of such transference is supreme.

As to the first: In all the genuine experiments undertaken it has been shown that if two minds can be found in unison an image clearly held by one of

the minds can generally be created in the other so that it will seem to be objective to it. If, for instance, one sitting hold in his mind vividly the image of a circle, or a book, or a horse, and think of it with sufficient clearness, it will reveal itself to the mental vision of one in unison, who is awaiting its impression. So often has this been tried that its successes are sufficient to prove that they are far and away beyond what the law of probabilities would indicate. Therefore it may be accepted as a scientific verity in human experience. All that we learn from these experiments, however, is that a thought may and frequently is so transferred. But what Nature's *modus operandi* may be is not generally discussed.

When we investigate the transference of thought undertaken through a hypnotic or trance subject, then we learn not only that under such conditions it occurs with far greater frequency and certainty, but that it is far more vivid and immediate. Many of the incidents I have presented in the previous chapters were sub-conscious phenomena, or the results of the action of the sub-conscious or involuntary plane of the mind, and they were therefore markedly vivid and startling. But experimenters who have made a long study of operating through this submerged faculty present some startling results. They indicate that when the subject is endormed his sub-normal mind becomes like a clear mirror on which are reflected the images of other minds, or external objects, and which he observes as clearly, if not more so, as the normal mind dis-

cerns the common things of life. "In a state favorable to transmissions," says Ochorowics, "man enters into relation with all nature, and we might compare him to a liquid whose surface, being in perfect equilibrium, reflects like a mirror everything in the universe, faithfully pictures all objects."

As an illustration of this fact it might be well to recur to some of the work accomplished by successful hypnotists or mesmerisers. About sixty years ago there was a most successful operator, who was considered of such importance that he was invited to deliver his lectures, imparting the results of his experiments, before the Congress of the United States, and who completely anticipated the S. P. R. in the discovery of the secret laws of the mind. He demonstrated that in fact the hypnotic subject was so totally exposed to the sympathetic action or state of the operator's mind, that he reads it like an open book. He apparently demonstrated that the silent action of the brain was instantly reflected in the condition of the subject. "Let the magnetiser keep his mind concentrated upon the subject, merely *willing* him to feel a sensation, and he will instantly experience it." He says it is equally true of any of the other senses. If the magnetiser has a good imagination and can *think* he tastes anything the subject will immediately get the same sensation. He seems to have performed some wonderful experiments before numerous audiences, with a remarkably excellent subject. He describes them briefly as follows:

"The subject was seated upon the stage, carefully blindfolded by two handkerchiefs. I was requested to stand upon the floor in front of the audience. The name of the animal, bird, reptile, insect, was then written by any skeptic in the audience, and the paper handed me in silence. I was requested to use invariably the same interrogative—What do you see? In every instance the experiment proved successful. I was then requested not to speak at all, but merely to will in silence. And though this mode took longer than to call his attention directly to the object, yet the experiments proved equally successful. . . . In experimenting on all the senses, and insuring success, it only requires in the operator the power of concentrating his mind upon the mesmerised subject, and bearing along with it in his imagination the full electro-imaged impression of the desired experiment, willing the result, and it is done."*

These, of course, are rather amazing statements in the light of the experimental work undertaken by members of the S. P. R., which by no means proved to be invariably successful, yet sufficiently so to demonstrate the verity of the law that Dr. Dod enunciated so many years ago.

But the question again recurs, What are the elements called into play when a thought or mental image is instantly transferred from one mind to another? We may admit that sub-conscious transference or telepathy is a fact, but the question still remains to tantalise us, What is this telepathy, what is nature's *modus operandi*?

We know that in the action of a conscious thought within the brain of a human being, certain physical

*Dod's "Spirit Manifestations, Examined," 1854.

as well as mental activities are set in motion which are actually discernible. The mind-act, or thought, affects the nervous fluid which immediately agitates the muscle or tissue to be controlled. The will acts, and the nerve fluid responds. In other words, the human being cannot be affected by a thought or mental action save as it finds a proper element in the system through which to operate. Each nerve in the system has its peculiar or specialised use, because through long experience a certain rate of motion has been established in its substance which makes it unsusceptible to any other rate. "Different nerves are appropriated to the transmission of different kinds of molecular motion. The nerves of taste, for example, are not competent to transmit the tremors of light, nor is the optic nerve competent to transmit sonorous vibrations."* Now, there can be no vibration without an element through which to vibrate. And there can be no appreciation of a thought or mode of mind without a vibration to register it. Hence, whether it be within the mind of one individual a thought arises, or within the mind of another such a thought be received from a foreign mind, in either case, equally, a series of vibrations has been set in operation, and there must therefore be a certain element, visible or invisible, through which the vibration passes. Hence it follows that in so-called telepathy there must exist a positive substantial element in nature which becomes the instrumentality or medium for the operation of the thought energy. While, then,

*Tyndal: "Sound," p. 32.

it must of course be admitted that there is no visible substance which connects two distant brains, or minds, yet logically it cannot be concluded that there is no physical nexus between them. There must be some material connection, howbeit the substance of which the connecting element is composed is not amenable to the human senses.

Therefore, merely to have determined that there is a law of mind which permits of the interrelation between two minds, so sympathetically disposed that the one instantly becomes the recipient of the sensations or thoughts of the other, is to state but half the truth, omitting, in fact, the larger and more important half. The chief problem to be solved is manifestly not so much that of the transference of thought, as it is the mode of it, or the existence of the natural element which is utilised in the operation.

There have been many discussions of this problem, but in our day science seems, for the first time, to be approaching a true solution of it. Two hundred years ago Mesmer undertook its solution, and while he has been much regarded as a charlatan, he was apparently wise above his times. For he seems to have hit very close to the truth. It is commonly supposed that he conceived of an invisible fluid which permeates all the universe, and that by means of this fluid the wonders of mesmeric achievement are revealed. But as Ochorowics has well shown, Mesmer declared that "Magnetism, whether the universal or animal magnetism, is not a fluid, but an *action*; transmission of motion, not

an emanation of any kind. No displacement can take place without replacement, for all space is filled, and that presupposes that if a motion of the subtle matter is produced in one body there is forthwith produced a like motion in another similar body, *capable of receiving it*, whatever be the distance."

To see how close Mesmer came to the apparent truth we have but to understand something of what science teaches us concerning electricity and the ether.

We know that wherever electricity acts it generates around a substance on which it plays a field of magnetism. We know that electricity is everywhere; and we know that it is active in the human system. Nervous fluid is closely kin with electricity, it seems indeed to be its correlative, for, as Du Bois Reymond long ago proved, the galvanometer responds to the nervous action. Therefore, every atom of matter being surrounded with a magnetic field, as Farraday showed, the whole human system constitutes an electro-magnetic machine, and every sensation and mental action consists, physically, of electric action accompanied by a magnetic atmosphere. It is the action of this electro-magnetic energy which is exercised in the process of a thought or sensation through the nervous system and the brain substance of the organism.

A vibration once set in motion never ceases; it somewhere cuts out for itself a path through which it continues to operate as far as it can.

In the human system these paths are cut through

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the nervous tissues and become habits or mechanical modes of action. The vibrations must pass from the individual into the general ether and there seek further paths through which to travel.

The reason that thought transference is at present so uncommon, at least to my mind, is because the forms of thought, or modes of vibration, which pass from individual brains, have been dissipated in the ether on account of not having found synchronous brains on which to impinge, and being without such paths their habits of action have not become fixed.

The point, however, to which we must at present give our attention is that there exists an invisible and subtle substance, yet actual in nature, which constitutes an element between all minds, however distant, and which becomes the immediate receptacle for all vibrations emanating from thinking organs. The problem, then, that we must undertake to solve is what is the degree of plasticity to which this substance is susceptible, and to what extent can it be moulded and fashioned by the thoughts of the mind of man.

Now, in order to determine this, let us enquire somewhat more in detail as to recent discoveries concerning the nature and potency of the Ether. We have been long acquainted with the scientific hypothesis that the infinite void of the universe is actually filled with an indefinable substance called Ether. But it was supposed for ages that this substance was essentially different from visible matter, yet capable of penetrating the interstices of even

the most solid substances. Later researches, however, now teach us that as a matter of fact the ether is itself the primary substance out of which all the denser forms of matter are composed. We now hear scientists speaking of bound ether and free ether, whereas formerly it was supposed that ether was essentially free, playing a sort of independent game—a free lance of the universe. But all visible matter, we are now told, is merely involved or bound up ether, always surrounded by an atmosphere of free ether, which graduates into more rarified states in proportion to its distance from the limited or bound forms of ether.

The old idea of ether was that it constituted merely a medium for the dissipation of energy and vibrations as well as the foundation for the construction of organic and inorganic forms of matter. As one writer put it, "We recognise the ether as the connecting medium between separate ponderable bodies, as the vehicle of influences that pass from one body to another, and as the real and essential agent, both immediate and remote, in the greater part if not all the motions of the ponderable bodies."

But as we shall see in a few pages, modern discoveries seem to have annihilated the distinction between ponderable and imponderable bodies, between material and immaterial bodies, by showing that they are all but variable forms of the monistic substance, the Ether, which constitutes the actual foundation and origin of them all.

The new view of ether is well described by Sir

Oliver Lodge, who speaks of free ether as something through which all kinds of waves appear to travel at the same rate; but not so through bound ether. As he says specifically:*

“Ether is somehow affected by the immediate neighborhood of gross matter, and it appears to be concentrated inside it to an extent depending on the density of the matter. Fresnel’s hypothesis is that the ether is really denser inside gross matter, and that there is a sort of attraction between ether and the molecules of matter which results in an agglomeration or binding of some ether around each atom, and that this additional bound ether belongs to the matter, and travels about with it.”

In short, every atom and molecule is surrounded by an atmosphere of free ether, and its inside substance consists of the same ether bound into a denser compass. It is this fact, discovered in the laboratory by dissolution of the atom into its ultimate units, which opened the way to a scientific knowledge of the radio-active properties of matter. This property of matter, wholly unsuspected a few years ago, seems to be contradictory of the ordinary properties of matter in its gross and inert forms.

We must not lose sight of the free ether that exists in all space, and the ether that graduates from crude and palpable substances to the most refined expression, merging in an invisible state, which is the equivalent of a vacuum.

Now, what we wish especially to discover is the susceptibility of this free ether, and particularly

*“Modern Views of Electricity.”

the ether surrounding organised forms of matter, to the finer forces of sensation, thought and volition as they are exercised in human beings.

To what extent is this ether susceptible to mental manipulation, as we might say, or subject to impression by the psychic activities of mankind and universal nature? Shall we be able to discover that this substance is the immediate medium of thought, revealing itself in a specialised form, as we have intimated, in the neural force that permeates the brain and the nervous system, and that by reason of will-action or intense emotional expression it may be moulded into such condensed manifestations as are discerned in radio-active properties, whose ephemeral exhibitions have constituted the substance of the mysteries of all time?

CHAPTER XXII

ULTIMATE MATTER AND VITAL ENERGY

One cannot but feel that the material of which the human body is composed, whether it be the exterior substance of the cell-bodies or the more refined interior plasm of the cell, is too crude, gross and static, to be the immediate element which thought force utilises as the instrument of its expression.

Is there in the human organism an element which may be said to constitute the substance of the soul, or an element through which especially the psychic activities are exercised? We are not here discussing the nature or the origin of the soul. We attempted that in the previous volume, to which we have referred. But whatever the soul may be, in so much as it may be regarded as the aggregate of the sensational, emotional, volitional and intellectual activities of the living organism, does it finally register its forces in an element even more refined, volatile and sublimate than that of the brain and nervous tissues of the body? Have we any facts upon which to rest the theory that there may be a specific soul-body, distinguishable alike from the visible aggregates of the cell-organisms and the invisible aggregates that consist of the ultra-microscopical units of the life-substance?

In the later discoveries of biology it seems to be demonstrated that the vital force is not the product

of the mechanism of the cell body, as once supposed, but that it exists in the ultra-microscopical substance of pure protoplasm. Professor W. H. Conn, in his "Story of the Living Machine," it is true, contends that "We know of no such simple protoplasm capable of living activities apart from machinery, and the problem of explaining life, even in the simplest form known, remains the problem of explaining a machine." But more recent discoveries seem to compel the biologists to distinguish between the pure ultimate life substance of the cell (the plasma) and the fibrilous substance that constitutes the foundation of the machinery of the cell body. Haeckel insists that the theoretical ideas which undertake to explain pure plasma as a structural process have a serious defect in that they consider only the microscopical elements of the cell structure, which do not constitute parts of the protoplasm, as such, but only of the cell body.

The microscopical or discernible structures of the cell, he declares, are not the efficient causes of the life process, but the products of it. According to him, we cannot hope to discover the *workings of the life force* primarily in the cell structures *but in the structureless and microscopically invisible substance* of which the cell structure is composed.

In full accord with, and in explanation of the recent biological discoveries which sustain Haeckel's theory, H. C. Bastian, the famous British scientist, who has spent the better part of his life upon the problem, says:

"Formerly the lowest independent living units

were thought to be unicellular organisms,—that is, units possessing a central body known as the ‘nucleus,’ together with a distinct cell wall; and Schleiden and Schwann in 1839, as a result of their remarkable investigations, endeavored to prove that all the tissues both of plants and animals were entirely built up of such morphological units, named ‘cells.’ . . . But it was maintained by Naegeli, and also by Alexander Braun, and then more emphatically by Max Schultze, that a distinct investing membrane or cell wall was not an essential character. . . So that in place of the old cell, with its definite characters, this would reduce us to a mere naked, non-nucleated bit of protoplasm as the simplest material substratum adequate to display all those ‘vital’ manifestations which were previously considered as the essential attributes of certain formed elements known as ‘cells.’ ”*

It is true that all biologists of note do not agree with this conclusion, notably our American biologists, C. S. Minot and G. N. Calkins; nevertheless, the tendency seems to be to corroborate Bastian’s and Haeckel’s conclusions, and I am accepting them for the purposes of the argument of this work, in order that we may learn what bearing even the most thorough-going so-called materialistic interpretations may have on the psychic problems we are investigating.

In Haeckel’s language, then, “The true protoplasm, or viscous and at first chemically homogeneous substance, cannot, in my opinion, have any anatomic structure.” As he refuses to discern in

*“The Nature and Origin of Living Matter,” p. 21. Watts & Co., London.

the structural processes of the cell the origin of the life activities, he insists that life in its lowest and simplest form is nothing more than a process of metabolism, hence a purely chemical mode of activity. Undoubtedly such a theory to many predisposed to traditional thinking appears to be repulsively materialistic, who insist that the spiritual substance inherent in a human being cannot be in any way allied or identified with what is known as a chemical process.

Thus Conn remarks, "If the physical basis of life had proved to be a chemical compound, the problem of its origin would have proved to be a chemical one. Chemical forces exist in Nature, and these forces are sufficient to explain the formation of any kind of chemical compounds. The problem of the origin of life substance would then have been simply to account for certain conditions which resulted in such chemical combination as would give rise to this physical basis of life. But now that the simplest substance manifesting the phenomena of life is found to be a machine, we can no longer find in chemical forces efficient cause for its formation."*

As already observed, Haeckel's and Bastian's opinions are diametrically opposed to this. Nevertheless, even people who possess a thoroughly idealistic bias might well consider whether even if the materialistic deduction be true it is as wholly objectionable as at first it seems to be.

Keeping in mind the law of the unity of nature,

*"The Story of a Living Machine."

let us see if there is not something quite as consoling as convincing in this apparently harsh deduction. Before we conclude that a chemical process is material and nothing more, ought we not more carefully to study such a process? What does science mean by a chemical process? On the surface it appears to mean merely the exercise of a certain mathematical law by which elementary units of matter are mutually attracted and repelled, resulting in the decomposition of certain substances and the recomposition of others. On its surface this statement would appear to cover the facts completely. But have we omitted nothing? If we look deeper do we not see that such a description is by no means the whole of the story? Indeed, has not the profoundest of all the facts been overlooked?

If chemical or elementary units combine or separate are they not affected by some agency without which the changes could not transpire? Is there not here an invisible and illusive presence which presides over the fates of the individual units that enact the drama of the chemical transformations? "There is," says A. Dastre, of the Sorbonne, Paris, "a metamorphosis from one state of things to another—mutation. A bond of union connects the state which is anterior to that which follows—the new form which appears with the old form which vanishes. The science of energy shows us that something has passed from the one condition to the other, only covering itself with a new investiture; that in the passage from one state to the other there

was something permanent and active, and that the change is but an aspect. The thing which remains constant under the vicissitudes of form, and which connects in a definite manner the antecedent to the phenomena which follow, is energy.”*

Motion, or energy visible in action, is then the primary stimulant and origin of all natural phenomena. Unless some motion is set up between the ultimate elemental units of matter of course there can be no decomposition or transformation. Our final comprehension of nature resolves itself into an apprehension of the potentialities of energy. If we discover in this energy, evidenced in the motions of the universe, the source and stimulation of all the activities of nature we have discerned the principle of unity and may understand how life itself is a correlate of the same supreme energy. “We are led to see in the phenomena of the world nothing but the mutations of energy. In these mutations themselves we see the circulation of an indestructible agent, which passes from one form to another as if it but changed into disguise.”†

Even if we accept the modern physicist’s notion of matter we shall fetch up at the same goal. If the theory be correct that an atom of matter is built up of positive and negative units of electricity, “interleaved together,” as Lodge describes it, and that “the oppositely charged electrons are to be thought of as flying about inside of the atom, . . . forming a kind of cosmic system under their strong

*Smithsonian Report. 1898.

†Dastre.

mutual forces," then, apparently, units of matter are merely oppositely whirling centres of energy. The material units of the atoms, nor the atoms themselves, lay adjacent or in mutual contact, nor are they propelled by mutual impingement. They are each separated from the other by intervening fields of force mutually attractive or repellant, which surround them like a never-resting atmosphere.

The recent discovery of the dissolution of the atom, and the alchemic generation of one element, helium, from the decomposition of another, radium, would seem to demonstrate by laboratory experimentation, that at bottom all matter is constructed merely by the interplay of waves of ether of infinitely varying amplitudes.

Vitalism, then, interpreted, as a chemical process, seems not so unintelligible or repulsive if we contemplate all Nature as but the complex expression of a universal force or energy. An equivalence has been established between all the energies or forces in nature. They are all identical. The vital energy has its origin in some form of external energy and not in all the forms, as might be supposed, but only in one form, namely that of chemical energy. Any energy is, after all, but a phase of ether in a state of disturbed equilibrium; that is, in a state of motion. As Ochorowics says: "Whether forces as such exist in nature, I know not; *a fortiori* I know not whether they exist outside of nature; what I do know is that, so far as it is knowable, force is nothing but motion. We say

'motion' when we see motion; we say energy when the motion is invisible."*

Our entire problem, then, is merely whether this expression of universal energy, motion, is itself the essence and origin of the life force as it is of all the other forces or energies of nature. The final word of science seems now conclusive on this matter, as so convincingly voiced by Dastre: "A single order of things now embraces life and the physical phenomena, for all the phenomena of the universe reduce to an identical mechanism and are represented by the atoms and their motion. . . . Physical properties and the manifestations of life, the whole world even, offers nothing in the last analysis but motion. All the phenomena are expressed by an atomic integral, and in this we find the *majestic unity* which dominates modern physics. The forces of life cannot be distinguished from other natural forces; all are confounded in molecular mechanics."

Harsh as this may sound to some who survey only its surface meaning, in my judgment it is the noblest offering of modern science to a lofty and sublime philosophy. For by following to its utmost distance the achievements of this same mechanical or molecular science we shall find that it leads us into an actual vacuum of Nature where is found the invisible state that not only lends itself to the imagination of the idealist or mystic but to the explanation of much that has dumbfounded and confused us in human experience.

Gustave le Bon, one of the most advanced phy-

*"Mental Suggestion."

sicists of modern times, who has forced a complete reinterpretation of all the sciences within very recent times, asserts that "the forces of the universe are known to us in reality only by disturbances of equilibrium." If, then, we regard chemical action as the interplay of forces, and chemical reactions as the equations resulting from the pressure of external forces upon the forces within the atom, as Le Bon intimates, then we may easily understand how vitalism is a chemical force in conformity with the universal laws of matter. "Chemical compounds are mobile equilibria varying with external conditions," is his formula. Hence, as we ascend from the more static equilibria to the more dynamic we approach the plane of the vital as distinguished from the mechanical. But the mechanical as distinguished from the vital would appear to depend wholly on the mobility of the state of equilibrium. As the energy grows less mobile it constitutes the state we call the material, whether solid, fluid or gaseous. As it becomes more mobile it approaches the state we call immaterial, whether dynamic, chemic, or vitalistic.

But the point at which science seems yet to stumble is as to what the vital process is that constitutes the nature of the forces at work within the unit of life.

Protoplasm itself, or living matter, seems to be a substance that causes all sorts of chemical changes or reactions without in the least disturbing its own equilibrium. While it causes life activities in the embodied cell, that is, effects chemical changes in

the cell organism, no chemical changes or disturbances can be detected within its own substance.

"By means which we do not even suspect, the vital cells are able to construct complicated and varied compounds—necessary to the support of life."* And this result is achieved by a process with which science is not yet wholly acquainted. "Chemistry," however says Le Bon, "seems to have accomplished this much, that it has brought us face to face with forces whose reactions are as yet wholly unknown."

Nevertheless, a faint glimpse is already given us of a discovery which yet promises to divulge this deep-laid secret of nature. The very latest intimations of physical science would seem to indicate that there exists within the interior of the chemical atom, deeper down even than the electrical corpuscle of which it is composed, *a secret force*, now called the *intra atomic force*, that may yet clear up many of the mysteries of chemical action as well as of the origin and processes of living matter.

In the study of this mysterious force science appears to lead us to the very door of the arcane and occult. We are told that this most recent discovery, which has so puzzled and astounded the entire scientific world, will necessitate a new chemistry, a new science of thermo-dynamics, indeed, a wholly new cosmology. Regarding the great discovery of this force, Le Bon says, "We are on the threshold of a new science where our ordinary reagents and balances can be of no help, since it is a question of

*LeBon.

reactions whose effects are enormous, notwithstanding that but infinitely small quantities of matter are brought into play."

Thus science reveals to us nature's processes in the gradation of matter from ponderable to imponderable substances, from material to immaterial, from physical to psychical. It seems at last to have been demonstrated in the chemical laboratory that all material substances can be reduced to a state of imponderability and actual invisibility. Not only that matter may be able to assume an invisible form, such as in gases and electrical units, but that matter and material energy may be made actually to disappear into a vacuum, to dissolve into primal ether, into an absolute equilibrium, whence it passes far beyond the plane of sensible appreciation and becomes nothing less than a spiritual element. The universe is reduced to a process of ethereal vibrations whose laws seem to be determinable by exact science. "The vibrations of the ether represent the last stages of the dematerialisation of matter, the one preceding its final disappearance. After these ephemeral vibrations the ether returns to its repose and *matter has definitely disappeared*. It has returned to the primitive ether from which hundreds of millions of ages and forces unknown to us can alone cause it to emerge, as it emerged in far-off ages when the first traces of our universe were outlined on the chaos."*

This reads like an impossible romance of nature; yet it seems to be the plain, unvarnished truth.

*LeBon: "Evolution of Forces."

Matter, then, to the eye of science dissolves into primal energy, and even energy embodied in infinitesimal waves of ether vanishes into a primal state beyond the discernment and imagination of man. Ether, then, is dissolved matter, in a state of perfect equilibrium, void of particles or aught of differentiation. It is the universal plenum, the absolute content. How closely here the deductions of science verge on conceptions of the imagination! The world of objective Matter dissolves in a world of pure Being.

If it were not that the word connotes a theological sense, science having so far analysed and dissected the substance of Nature, we might well say that it had resolved the universe into an expression of pure Spirit, the matrix of all the forces that play in the infinite conformations and vicissitudes of the phenomenal world.

Science, having led us thus far by its guiding torch, cannot pause here, but must still seek. She must answer the last riddle of the sphinx. She must learn what is the potentiality of this primal ether or pure spirit.

We had supposed that science had already learned the potency innate in matter, even in its ulterior phases, but suddenly she finds herself confronted by activities and manifestations of which but a few years ago she was totally ignorant. The whole story of the origin of the forces of the universe, it would seem, must be written again. Formerly these forces had been supposed to originate outside of atomic matter and to cause material

transformations by the play upon it of these exterior stimulants. But now it would seem that the startling discovery has been made by Le Bon and others that the supremest of all natural forces is latent within the ultimate unit of matter, the organised atom, which itself is but an involution of concentrated ethereal vibrations. The release of these vibrations, for ages imprisoned within the material unit, is itself the origin of the tremendous forces that sway the universe. We are informed, however, that the possibilities of this involved force are as yet wholly beyond the imagination of man.

Now as physics is teaching us, we must look to this energy involved within the unit of matter, or the atom, if we would learn the deepest secrets of the material world; so biology is beginning to intimate that we must look to a heretofore unrecognised force within the cell of human life if we would discover the origin of the forces whose psychic energy seems to contravene the ordinary material forces of space.

We may read in these pages of some strange parallelisms between the manifestations of what seem to be miraculous powers in both the inorganic and the organic world, and we are to try to learn whether both these series of phenomena, the material and the psychical, do not owe their origin to a force as yet unrecognised within both the inorganic and the organic bodies.

Modern physics has recently presented us with some of these startling phenomena, achieved in mechanical laboratories; and explained their causes;

revealing the fact that we are just approaching a knowledge of forces in Nature we had not heretofore suspected. May we expect as much when we look to so-called psychic phenomena? Has not science already shown us the force, physical though it be in the last analysis, to which we may also refer the origin of this latter class of phenomena?

CHAPTER XXIII

RECENT MYSTERIOUS SCIENTIFIC DISCOVERIES

In an earlier chapter I referred to the phosphorescent condition of protoplasm and the lower forms of living matter; showing that the entire interior of such organisms is constantly radiant. Molisch goes so far as to insist that the radiant halo emanates from a substance within the cell. "The further our knowledge of the subject is extended, the more probable appears the idea that within the cell is a hypothetical substance, 'photogen,' which has the power of producing light in the presence of free oxygen."

I have intimated that could we see the interior protoplasmic body, which is normally beyond the power of the microscope, we would behold an object, precisely in shape like our outer body, consisting of a sublimate, transparent, but luminous substance. But it has now been scientifically demonstrated that whether or no we are possessed of such an invisible interior radiant organism, we are surrounded by an exterior shadow of light that follows the contour of the body, but which is invisible to the normal eye of man. However, it is quite possible that eyes do exist which can see it, as Le Bon intimates: "Down to absolute zero of temperature all bodies incessantly radiate waves of light invisible to our eyes but probably perceptible by ani-

mals called nocturnal and capable of finding their way in the dark. To them the body of a living being, whose temperature is about 37 degrees Centegrade, ought to be surrounded by a luminous halo which the want of sensitiveness of our eyes alone prevents our seeing. There do not exist in nature any really dark bodies, but only imperfect eyes.”*

We are at once reminded by this suggestion of a possible explanation of the superstition that the lower animals are often thrown into a panic by observing things in the dark which we cannot see. Possibly the ghost stories of which there are legion may be very considerably explained by a better understanding of this natural phenomenon.

We shall also, perhaps, find in this invisible radiation an explanation of that class of phenomena, to some of which I have already called attention, which have sometimes been accounted for by a supposed “endemic” or “odic” force residing in the human system.

Before leaving this study we ought to call attention to marvellous photographic achievements by means of the phosphorescent quality of living and non-living objects. Only a decade ago who would dared to have even intimated that, if a body were exposed for but a minute to the sun and then confined in darkness, it would for eighteen months “preserve the property of emitting, without cessation, radiations identical with light, and only differing from it by an absolute *invisibility*”? Le Bon has presented us with the photographs produced in

*LeBon: “Evolution of Forces.”

the dark by the invisible rays emitted from the objects, photographed eighteen months after having been impinged by rays of light. That is, the statuettes which he photographed gave out an invisible light which was sufficiently strong, eighteen months after exposure to the sun, to affect the plate of the camera quite as efficiently as the sunlight itself.

Another very striking and amazing effect which Le Bon produced by means of the invisible rays was his causing an *object in absolute darkness* to become *luminous* through the imperceptible phosphorescence emitted by a dark lantern. That is, he shows that the invisible rays may exist even in an object which has not been at all exposed to the light of the sun. In his experiment he suppresses all visible sources of light, places the observer in complete darkness, and in this pitchy darkness causes gradually to appear before his astonished eyes a luminous statue on which no ray of visible light has fallen. By a mysterious process in nature he reverses the well-known result of the interference of rays of light producing darkness, by causing *darkness* when *added to darkness* to produce *light*!

Anything more nearly approaching magic, or the miraculous, we can scarcely conceive. Yet this is accomplished as a result of experiments in a physical laboratory. If the spiritistic seance could create any wonder so tantalising as this phenomenon, how utterly would the human mind be confounded and how eagerly would the unlettered proclaim it a miracle caused by supernatural powers! Imagine, if you please, yourself seated in a room so dark that

no blind upon your eyes could deepen the gloom; that you saw absolutely nothing, save the velvet darkness itself, with no intimation of an existing object about you. Suddenly, as you are dreaming, or absently pondering on your state, you behold a curious suggestion of an electric light forming in cloudy shape upon the dark void. You gaze in horror and confusion. What can it be? Slowly the luminescent cloud seems to take on a condensed shape, and at last conforms itself to the exact figure of an object so clear and positive that you are forced to admit its existence. Whence did it come? What power formed and shaped it from the air? Surely here is thaumaturgy beyond compare! The age of miracles has truly not yet vanished! And how easy would it be to play upon the ignorance of the multitude by using such a discovery for its stupefaction and bewilderment! But we are relieved to learn that there is nothing magical or supernatural about it; no spiritual or arcane forces have been conjured to produce it; it is but the effect of a heretofore unknown property of light, for all these ages, until to-day, concealed from human observation.

It is the effect of sunlight, true; but of sunlight so transformed as to possess qualities which even the sun's direct rays do not possess!

But another still more startling discovery is the *absolute translucency of almost all objects which have been heretofore regarded as opaque*. We have learned that by means of the X ray opaque bodies could be penetrated; but that merely meant there were certain recently discovered waves of ether

which were able to penetrate solid bodies. It left us to surmise that the ordinary rays of light could not ever penetrate such opaque bodies. Now, however, we learn that certain of the luminous rays themselves, without difficulty pass through many "opaque" objects, and, what is even more surprising, the *invisible rays* which pass through the solid objects can themselves be *rendered visible*.

So Le Bon most wisely says, having demonstrated this latest "miracle" in science, "If, then, our eye does not see through opaque bodies, it is not because luminous rays do not pass through, but because our retina is insensitive to these rays."

The amusing legend about the lynx, that the glow of its eyes could penetrate solid walls, and behold scenes impervious to human vision, may not after all be so humorous and unscientific as it seems at first. For Le Bon continues, "It would be very easy to imagine an eye but little different from ours, and moreover possibly possessed by nocturnal animals, which should have the property of *seeing through* opaque bodies."

There may, then, actually exist in nature a clairvoyant eye, which is capable of not only beholding objects in the dark, but which can even pass through the solidest substances and discern the things which to the rest of mankind are invisible.

Thus again science seems to be treading closely and most dangerously on the heels of so-called psychic phenomena and granting us premises which may in all probability solve many of their problems. It is quite possible that when we more fully

understand the workings of this law we shall be able to explain the entire line of psychic phenomena which seem to contradict the ordinary experiences of the natural senses.

Nor does the study of the luminosity of invisible rays pause even here, but passes on to still other achievements produced by such rays when appropriated by the genius of man.

Suppose some exultant, occult thaumaturgist conducted you into a room of pitchy darkness. Before entering he furnished you with a box whose contents he permitted you to examine only to find it contained nothing. When you were once within the room, he would cause you to be seated, and while you were expectantly awaiting results, wondering what was to transpire, suppose you were suddenly confounded by witnessing the performance of a curious light that made the very box transparent in the complete darkness, allowing you suddenly to behold the inside of the box itself. But suppose the wonder did not cease here; suppose you then beheld things inside the box which you knew were not there before, when you had first been privileged to examine it. The "thaumaturgist" had simply slipped these things into the box after it had been handed to him by you in the dark. And now you are privileged to look right through the walls of the box and see the things inside, although pitchy darkness still fills the room, and you can see nothing else but the box and its contents!

Would not you surely say, Here is a wonder-

worker whose achievements surpass all the legerdemain you had ever witnessed? And if you were inclined to superstitious belief, would you not surely declare that such things could not come to pass save by the intervention of supernatural powers?

Yet the only "magic" called into play is a knowledge of nature's possibilities. The discoverer of "Black Light" shows how all this and much more may be accomplished by merely utilising certain heretofore unobserved and for us wasted radiations of the ether.

Or let us suppose again that some bewildering thaumaturgist invites you into his "temple of mysteries." He is going to prove to you his intimacy with the gods or spirits of the air, by the fact that they have endued him with powers of which the human mind has not yet conceived. To demonstrate this he asks you if you are afraid to enter a cabinet which he has constructed. You look within, and for an instant you shudder; you discern that once entering you are totally shut out from the light, for apparently a ray so slight does not exist as to find a crevice small enough through which to creep. Nevertheless you muster your courage and say, "All right; I'll enter; go as far as you please."

You enter. The door is swung shut sharp and tight. You begin to tremble. What is now going to happen to you? You have not long to wait. He strikes three times upon his mystic palms. Presto, change! The door is swung wide open. You make your exit joyfully into the light. And then you see—what? Simply this: A perfect

photograph or likeness of yourself! *A likeness of yourself photographed in total darkness!*

There, as you sat within, in the densest darkness, this "thaumaturgist" has succeeded by the assistance of unseen "spirits" or "powers" to steal the likeness of your countenance and stamp it indelibly on the sensitive plate of a photographic camera. You are dumbfounded and absolutely assured that your wonder-worker is possessed of divine and supernatural powers!

Not at all. Nature mocks at the miracle. He has simply followed a recently discovered trail of natural law and utilised certain waves of the ether which all these ages have resisted the penetration of the human eye. Indeed, your miracle-worker might have gone further than this and not overstepped the bounds of nature. He might have not only enclosed you in a dark box and secured the imprint of your face on the camera's plate, but he might even have taken you into a pitchy dark room,—a room into which no ray of light *ever* penetrated, some cavernous crypt,—and there have again locked you within a box, whose blackness of darkness would be even blacker than the darkness of the outer room, and then, too, presto, change! he could have taken your likeness on a film, contrary to every law of nature known till within a few years.

What say you to this? Is not here marvel of which the seance room may well be jealous? Yet here is nothing mysterious, supernatural or contradictory of natural law. It is merely the result of a very recently discovered law of nature. How

many more possibilities of the forces that inhere in invisible ether are we yet to learn?*

*For all this let the reader refer to LeBon: "Evolution of Forces."

CHAPTER XXIV

SOME OCCULT FORCES IN NATURE

Before we attempt further explanation of the so-called psychic phenomena, to which we have referred in the previous pages, let us first briefly study the characteristics of certain occult forces of nature, already known to science. We have grown so accustomed to call certain inexplicable forces by specific names, we have deluded ourselves into the notion that by merely naming them we have come to know and understand them. Yet this is a great mistake.

Regard for a moment the force of gravitation. Newton discovered its operation and was able to describe the law by which it was effected. But beyond that he could not go. Nor has any scientist since been able to further penetrate its mystery. The contradiction of all other laws in nature which the force of gravitation presents consists in its apparent power to effect action at a distance, without an intermedial agency. Gravity precisely affects all bodies proportionally alike, in every part of the universe, no matter what their distance, nor how many apparently interfering objects may intervene. In ordinary experience we know only of action as a result of contact. Yet in the operation of the force of gravity there is not only no visible contact, but there is even the opposite force of interference. Yet in spite of the interference of in-

tervening bodies and forces, the force of gravitation seems to be primal and supreme. We have no way of explaining this at present; yet it stands forth as a tremendous illustration of a *fact* in Nature, and that fact is that there are *actions produced in the universe* which are *not* the result, as far as we can at present learn, of *physical contact*.

This phenomenon has always confused the physicists. As says Professor Vernon Boys: "It seems to defy all our attempts to abandon the inconceivable idea of action at a distance; for even when we might conceive another mode of action, it is entirely incomprehensible that gravitation should act at a distance without regard to the existence of the bodies in its path, and, as it appears, *instantaneously*. Moreover, in the actual state of our knowledge, no other physical agent, even among those which depend upon the ether, has any influence over the direction or the extent of the action of gravitation."

The one point that we are at present, however, to bear in mind, is that gravitation is a fact in nature, and that it is action at a distance without contact.

Again, in electricity we have the almost instantaneous action of a force at a distance without contact. While here we can trace the form of the etheric wave that acts, as of course we cannot in gravitation, yet the point of value to us in this discussion is that, while the wave may be computable, its action is affected contrary to the usual movements of material substances.

It has been shown that the theory of the emission of electrons as a source of communicated electricity is very doubtful, but that the charge seems to pass without any discoverable medium.

When we study the effects produced by the Hertzian wave, we come to another illustration of action at a distance without the apparent intervention of any material medium. By the employment of this wave not only can small instruments such as those utilised for wireless telegraphy be moved, but it is now demonstrated that the same force can be utilised in directing the course of an air ship, or even in moving trains of cars. The train is moved without any visible contact. Nothing operates apparently but the energy of the Hertz wave, mechanically employed. Here, then, again we have another startling demonstration of action in Nature at a distance without visible contact.

Another phenomenon to which we should call attention is the amazing effect of radio-activity on the vital activities. Extremely interesting experiments have been made with vegetables and plants showing that the application of radio-activity, intelligently employed, results in enhancing the period of growth very considerably, and frequently in wholly changing the outer appearance of the fruit or leafage, and not infrequently in so altering the chemical arrangement of the molecules as to give a foreign taste and coloration to the article. Here are some of the results of Le Bon's tentative experiments (for he informs us he was interrupted in his work before he could complete it to his satisfac-

tion): Plants developed in the light of day and then exposed to the "black light" (Le Bon's method of liberating intra-atomic energy, a condition of radio-activity) resulted in germinating much quicker than by the direct light of the sun, but they would wither and die away in a fortnight. Artichokes submitted to the treatment blanch completely in a few days, but develop better than their neighbors exposed to the daylight, while gaining much in quality. Pears, peaches and grapes blanch somewhat, but they lose part of their sweet taste and their aroma. Tomatoes lose their red colour and become completely white.

This phase of experimentation with radium and radio-activity applied to vegetation has as yet been but meagerly attempted; but it seems to promise much fruit in the better interpretation of nature and the explanation of now somewhat occult phenomena. I would here in but a tentative manner call attention to the alleged work of Professor Livingston Leach, of Auburn, R. I. He claims to have made original experiments with vegetation when submitted to the energy of radio-activity under peculiar conditions, with results that are so startling as to border on the seemingly miraculous.

In a statement which Professor Leach has issued from his laboratory in Auburn, he says:

"I have completed a series of experiments which prove that all forms are the results of evolution, and this latter is a result of radio-activity.

"By treating small trees with artificial heat for several days, and for several hours each day, and

allowing the trees to cool suddenly at sunset, and by sending a continuous flowing stream of cool spring water containing iron in solution at their roots, I have changed the shape of their leaves from a homely plain oval to a beautiful leaf having lobes and a compound or complex organism.

"I have shaded the stems of plants and caused roots to protrude instead of stems and leaves. The whole system of complex organism is produced by radio-active lines of force."

Professor Leach has issued photographs of his transformed leaves, and seems enthusiastic as to his alleged discovery. I am not competent to judge of the efficacy or accuracy of his discovery as a scientific fact, and merely call attention to his statement as being somewhat in conformity with the recent discoveries of Le Bon and others, as showing the marvellous and until recently wholly unsuspected possibilities of the force of radio-activity. It must not be forgotten, however, that no less an authority than Professor Francis Darwin, son of the immortal Charles, recently lecturing before the British Association for the Advancement of Science, said concerning these recondite forces of nature in the evolution of plant life:

"We know from experiment that a plant may be altered in form by causes acting on it during the progress of development. Thus a beech tree may be made to develop different forms of leaves by exposing it to sunshine and shade. The ontogeny is different in the two processes, and what is of special interest is that there exist shade-loving plants in which a structure similar to that of the shaded beech leaf is apparently typical of the species. Goebel also

states that in some orchids the assimilated roots take on a flattened form when exposed to sunlight, and in others this morphological change has become automatic, and occurs in the dark."

We are evidently approaching a period of extraordinary discoveries, a mere hint of which we have at the present time. It must be that much which appears as miraculous and inexplicable will in a few years be classed with the fund of knowledge we now possess as scientific, and clearly understand, which a few decades ago was submerged in a sea of doubt or bewilderment. As Le Bon truly says:

"It is hardly to be imagined that the forces of Nature are limited to the small number of those with which we are acquainted. If we are ignorant of them it is because we have no reagents to disclose them. The discovery of appropriate reagents is the sole means of putting them in evidence. During the last twenty years science has annexed the Hertzian waves, the X-rays, the cathode rays, the radio-active rays, and intra-atomic energy to the small kingdom of forces known of old. It is difficult to believe that the end of these discoveries is reached, and mighty forces may surround us without our knowing it. Intra-atomic energy was unsuspected barely ten years ago. Electricity, unknown for thousands of years, would perhaps still remain so if all bodies were good conductors."

What I am attempting in these pages is merely an enquiry as to the extent to which the so-called psychic phenomena may be attributed to the curious forces so recently discovered, and whether all decision concerning their origin in the light of these

most wonderful recent discoveries must not be postponed till we have more absolute assurances from Nature herself.

CHAPTER XXV

THE SUBTLE SEAT OF HUMAN INTELLIGENCE

The cell of life must again for a moment be the subject of our study. We have already noted that science seems to point to the interior and ultimate substance of which the cell is composed, the unorganised and homogenous plasma, as the real source of vital activity of the organised elements, which are products of this substance. These products are all microscopically visible. But the plasma is unmicroscopical, as it belongs to the plane of molecular activity, beyond the reach of any human invention.

It would seem (as intimated in an earlier chapter) that certain forces reside within this ultimate plasm which have persistently given evidence of their existence, but of whose origin we have ever been ignorant. Why may it not be that the wonderful phases of psychic force, about which we are studying, have their origin in the secret energy within this plasm? Certain intimations of the forces lying within the atom would seem to suggest this.

By the discernment of what Le Bon calls "effluves," or the emission from all forms of matter of particles endowed with immense speed, capable of making the air a conductor of electricity, and of passing through material substances, he was led to discover "intra-atomic energy," or the constant dis-

solution and death of matter in Nature. The phenomena that chiefly accompany the release of this mysterious force are radio-activity, phosphorescence, etc. The material phase that seems to be associated with the process of the formation of the atomic unit, as for instance, in passing from the liquid to the solid state, according to Professor Quincke, of Heidelberg, is that of "foam-cells" as well as the crystalline formations.

The fact here to be observed is that the primal life substance, or plasm, is characterised by these same qualities. It consists of a viscous, or foamy nature, and it is radio-active and phosphorescent, as we have shown in a previous chapter. What we wish here, however, to investigate, is what may be the intimation which lies within these characteristics.

It seems that the very viscosity of matter, a state that lies between the solid and the fluid, is itself a phase of involved force, which is susceptible of liberation. Those who have examined this phase of matter suggest that the viscosity is caused by a gyratory or rotary condition between the particles of ether. That is, the ether units, or nuclei of ethereal vibrations, by their whirling cause a sort of ethereal atmosphere to surround them, and this ethereal aura, because of the gyratory motion, assumes a viscous consistency. It would seem, then, that when the viscous atmosphere is disturbed, that is, when the mutual attraction between the particles is interfered with, the tendency of these particles is to fly away from each other into space. And

when this occurs then matter assumes a property it did not before possess. The electrons, the particles that are torn off and fly away, are able to penetrate material substances, make matter phosphorescent and radio-active, cause the air to conduct electricity, and accomplish other wonders. These wonders, the units of matter accomplish only when in a state of decomposition, when indeed, they are dying.

May it not then be that there lie within the cell of life these same buried forces, which are constantly being liberated but which are discernible only under certain conditions? This cell, as we have said, possesses the same physical characteristics, outwardly, as the cell or unit of inert matter. The unit of matter when decomposed liberates forces of strange and mysterious powers. Why may it not be that the mysterious psychic powers revealed in human experience may be the result of the liberation of the same intra-atomic energy from the cell-unit of life?

The discovery of the electron in physics has resulted in the achievement of physical wonders that would have once been regarded as miraculous.

The possibilities of radio-activity, the cathode and X-rays, etc., compel us to read anew the processes of nature. Their achievements are nothing short of the miraculous, if we shut our eyes to the more recent discoveries in the nature of matter. May we not learn something of the same lesson from an investigation of the cell of life? The substance of which it consists is foamy, radio-active, phosphorescent. This would appear to indicate

that the ultimate material units of which it is composed are in a state of decomposition. I am not here referring to metabolism, or the process of chemical decomposition, which relates only to the destruction of the cell bodies. I mean the decomposition or degeneracy of the primal substance of which the cells are constituted. That is, do we not witness in the activities of the plasma, or pure protoplasm, the process of the decomposition of matter itself, causing the release of energy that reveals itself in the characteristics of radio-activity, radiant matter, intra-atomic energy, etc. ?

Protoplasm is now regarded as a colloidal substance, that is, a substance between a solid and a fluid. "Active living protoplasm cannot strictly be described as either liquid or fluid in the physical sense. It presents an intermediary stage between the two which is best described as viscous," says Haeckel; and Le Bon reminds us that this colloidal stage of matter, whether vital or material, indicates a state of decomposition. "The elements of protoplasm are considered to-day as very unstable colloidal substances, and I have shown that these substances often come from the dissociation of matter."*

Now there is a phenomenon accompanying the dissociation of matter to which I wish to call attention. It is known as "emanation" and consists of matter in a state of semi-materiality. Just as the colloidal substances lie between the solid and fluid states, so the emanations lie between the material

*"Evolution of Forces," p. 365.

and the immaterial. Their properties are wholly different from those of material bodies. This phenomenon attaches, however, to almost all material substances, for it has been shown, as previously stated, that all matter, being always in a state of dissociation or decomposition, is radio-active. As the substance of which the cell of life is composed is colloidal and phosphorescent, thus indicating it is in a state of decomposition, it must be that it gives out a semi-material product, or an emanation. Although all bodies are radio-active and therefore emit the emanation referred to, it has yet been examined only in one or two substances, such as thorium and radium. It is a sort of gas, as it can be condensed under certain conditions. One remarkable characteristic of the emanation is that while its presence can be localised because of its phosphorescence when condensed, yet it *cannot be measured by the balance*. Another property of the emanation is that it vanishes spontaneously by transforming itself into electrical particles. It is this property which Le Bon emphasises to support his theory of a substance between material and immaterial in Nature.

I am calling attention to these qualities merely to ask whether, inasmuch as the cell of life is radio-active and therefore must emit an emanation, the entire organism which is built up of a multiplicity of these cell units may not be constantly giving off an emanation which causes the entire organism to be swathed within by a semi-material, imponderable, spontaneously vanishing substance, whose properties are distinguishable wholly from those of

the coarser substance of which the cells are composed? May it not also be that this is the element which actuates the work of the cells throughout the nervous system, and becomes the especial instrumentality of the exercise of the mental forces? I would here call attention to a paragraph in Dr. C. A. Stephens' "Natural Salvation" that bears closely on the conclusions just drawn. He says*

"Working from this basic knowledge of matter, our experimentation has been directed to determine what emanations or 'rays' a living cell gives off. It is hardly necessary to say that such tests are not easily applied. The only fact established is that the cell of life gives forth energy of the nature both of positive and negative electricity. . . . Nerve currents are more easily studied, by the ordinary methods. The result of our observation has not been to identify these fully as electric currents, but as electric currents, *plus other and more subtle emanations*. Their comparative slow rate of motion along the nerve trunks also indicates that a more complicated conduction is involved than that of an electric current through a wire, or other conductor. In a word, a 'nervous current' now appears to be a current of negative electricity—since it responds readily to the electroscope—but one either much modified, or bearing along with its component corpuscles a 'charge' of *something more ethereal*." (Italics are mine).

The interesting possibility to be studied, it seems to me, is the relation of this "charge" or "emanation" to the mental activities of the individual and its susceptibility to other mentalities and the subliminate forces in nature. Until this field is thor-

*p. 137.

oughly covered with every possible result it would seem to be futile to ascribe the marvellous phenomena of the so-called psychic force to spirits or ultra natural sources. In referring to the cellular organism of living bodies in my former work I undertook to show how there dwelt within our coarse physical exterior body a biological body, composed of the basic plasmic substance of the cell bodies, in itself utterly beyond chemical analysis, structureless and transparent. This ultra microscopic body, the exact fac-simile of the visible body, in itself invisible to the normal eye, was, I argued, the possible seat of the so-called human soul.

I am now seeking to call attention, in addition, to the purely electric or ultra-material body, which accompanies the entire nervous organism of the system, and constitutes apparently the immediate instrument of the psychic activities. Manifestly this electric body, being composed, as we have seen, not of ordinary negative electricity, but of radio-active emanations or corpuscles, would naturally be characterised by the properties of all other radio-active substances. Now the properties of the Cathode and X rays, of the electron or negative corpuscle of electricity, manifest in physical phenomena so many results similar to those that are effected in psychological phenomena that it occurs to me there may be some identity between them. It is to this fact I wish to call attention.

The corpuscular emanation which accompanies the liberation of intra-atomic energy seems to be the immediate instrument of the mind, the will, the consciousness of the cell of life. Stephens says:

"We may picture what goes on when the component atoms in the protoplasm are liberated, to form outward flowing currents, and that aura or field which is necessary to enable two or more cells, a million or a billion, to live together in one personality. At present, the physical basis of this personality seems to be a reciprocal confluence of corpuscles, or their more etheric corpuscles, first from atom to atom and, in larger volume, from cell to cell. *And the energy, thus liberated from the corpuscular velocities, constitutes not life itself, but the will power with which life acts.*" (Italics are mine).

This he claims to have worked out experimentally in his physical laboratory. That conclusion sustains my suggestion that the mind acts not directly on the coarse physical substance of the nervous system and the brain, but first on a refined, sublimate, semi-material, corpuscular, or ultra-electric substance, possessed of radio-active properties which are contradictory of the ordinary properties of matter. Again, just as the multiplicity of cells are aggregated into a single organism, and as the interior essence of the cells, the bioplasts, are separated from each other by a space not more than the five hundredth part of an inch, microscopically invisible and forming a shape in fac-simile of the visible body; so accompanying these two physical forms of the body it would seem that there is still a third, and that it is of a nature wholly different from the other two.

While we have the two physical forms, one structural and visible, the other structureless and normally invisible, yet both material in the outer

sense, we seem to have also another body, consisting wholly of the emanating velocities of ether, finer than electricity, and unlimited to the laws of ordinary matter. In some sense these three forms would seem to constitute the body, soul and spirit of man. The physical body, outwardly visible; the soul-body, the structureless, molecular protoplasm or vitalistic substance, beyond the reach of the microscope; and finally, the etheric or radio-active body, immaterial yet actual, the home of pure spirit, the immediate element of the psychic energy, the source and summoner of the spiritual powers.

Thus, as I have intimated, there may be a brain in which the psychic activities operate which is other than the visible brain of the body, though complementary with it, and whose powers may be superior to it and possibly contravene its powers. Of this we shall speak further.

Stephens and others seem to be demonstrating the hypothesis that the cell of life is a certain dynamo whose energy is set in action by a self-determining will; that all matter is sentient and in the concentrated unit of matter an individualised will is established. In the entire human being, a single supreme will reigns over the multiple wills of all the cell lives. Stephens says specifically that his experimentations seem to have demonstrated to him that the will force is centred and exercised not in the external, visible cell, but *"in the etheric corpuscle, which is liberated in the cell and is the active agency, when will power is exercised."* In short, we see that whenever the will of the cell in the sin-

gle unit of life, or the supreme will in the metazoic organism of a living body, is exercised, it operates directly in the etheric corpuscle, that is, in the semi-material, ultra-electric or radio-active form of energy which emanates from the cell itself.

The psychic force does not seem to operate directly on the structure of the cell, but indirectly. It first impinges the etheric corpuscle, that is, the centre of electric charge or the ultra-material emanation. Mind as volition, sentiency, and of course thought, finds then its native element not in the comparatively coarse or crude substance of the visible body, nor yet, finally, in the invisible and structureless plasmic substance of which the organic cells are composed, but in an insensible, impalpable element, or energy, which emanates from the decomposition of the primal material atoms.

Thought, sentiency and volition seem to be in some way involved in the energy liberated in the decomposition of the atoms within the living organism. The physical living body consists of an infinity of cells, these cells of an infinity of confluent corpuscles, all co-ordinated and united into one whole, which we call the human personality. But this final living, thinking, feeling, self-conscious personality seems to be possible primarily because of the liberation of energy which follows the decomposition of the minute atoms of which the material body is composed. Manifestly we are trembling on the edge of a most momentous discovery.

XXVI

RESUME AND ANALYSIS OF THE ARGUMENT

It may, perhaps, be helpful if, at this juncture of the discussion, I undertake to wind together the various threads of the treatise into an orderly and logical skein of argument. Let us not forget the object in view. It is to discover, first, whether Nature presents among her manifold laws and phenomena the suggestion of a logical theory for the existence of the human soul; second, whether she affords us sufficient data on which to ground a theory of the soul's natural evolution, from birth to life's earthly consummation; third, whether the laws of the soul's origin and evolution are consonant with the laws of natural evolution throughout the universe; and fourth, whether the discernment of these laws seems to warrant the deduction that the soul-forces are potentially of sufficient persistence to survive the dissolution of the animal body.

Incidental to this enquiry, we are also to investigate the verity and applicability of alleged supernormal or psychic phenomena, with a view to learning whether, if they be explicable within the plane of already discovered laws of the universe, such discovery and explanation afford additional ground for the potential survival of the soul energies in the embodiment of a personal consciousness beyond the grave.

As I intimated in my previous book, I am inclined to think that this same roadway of investigation into the supposed arcana of nature has not been traversed by any other explorer. If any have ventured that way, the author is at least ignorant of their pursuit. Of course I do not mean to intimate that many have not studied the same data and puzzling wonders to which the attention of the reader is called in this work. But I know not who, if any, has sought to co-ordinate the psychic with the natural, the spiritual with the material, the earthly with the divine, if I may so term it, as I venture to attempt in this treatise.

But far from being a fantastic effort I am inclined to feel that it is grounded securely on positive scientific knowledge, and that whatever originality there may be in the study consists merely in the attempted logical application of such knowledge to phases of human existence from which heretofore it seems to have held aloof. I am convinced that there never will be any, even the least satisfactory, philosophical solution of the profound problem that for countless ages has confused humankind, unless the results of the patient and diligent achievements of science are honestly utilised in that regard. It has, I believe, been a gross error on the part of theologians and idealists to refuse allegiance to science in the hope that she might some day force the speechless sphinx to declare the truth, and, on the other hand, of naturalists, physicists, biologists and mechanicians to assert dogmatically that science has no concern whatsoever with the problem, for she

has decided, *a priori*, that there is no problem, as there is no soul, no future, no immortality.

It seems to me that truth is attained only by avoiding both negative dogmatism and affirmative credulity. Only by intellectual honesty can either scientist or theologian, materialist or idealist reach the heart of Nature where her secrets are so sacredly safeguarded.

To summarise, then, and logically arrange and amplify both the substance of the argument and the deductions drawn therefrom in the previous pages of this work will constitute the effort of the remaining chapters.

An ancient writer truly exclaimed that man was fearfully and wonderfully made. If a writer, discerning as if by inspiration the marvels of the human organism some twenty or more centuries ago, could so record his amazement, what would be his language could he with the eyes of science observe to-day the secret parts and mysterious mechanism that constitute the human frame? Since Schwann and Schleiden, in 1838 and 1839, made the epochal discovery of the cellular origin and constituency of organic life, the entire biological world has turned its fascinated attention to the structure, mechanism and governing laws of the protoplasmic unit. The cell theory is still somewhat in dispute, nor is there a unity of opinion as to the origin of its constituent parts. But the tendency of all recent discoveries seems to be to regard the cell as a composite mechanism, constructed, by a process of evolution, from the primary structureless living substance,

which is without tincture undiscernible beneath the microscope. In this regard nature seems to have maintained the principle of evolution as defined by Herbert Spencer, in that the process is from homogeneity to complexity, from primary undifferentiated substance to heterogenous structure.

In short, the whole story of life is to be observed in the origin and development of the living cell. The history of the cell is the history of the whole organism; the story of the individual cell is the prophecy of the entire drama of human life upon this planet. Therefore, it is well that we ask of biologists to tell us all they can of this mysterious, microscopical creature, within whose infinitesimal bosom hide all the issues of human existence.

It is, perhaps, not an exaggeration to declare that we need not, and for that matter, must not, look beyond the drama of the cell life if we wish to apprehend, with any sort of scientific appreciation, what man may know concerning the soul and its potentialities. Such an assertion at once emphasises in many minds either one of two deductions. It means to them either that man has not and is not in any sense a soul, but purely a product of the earth, or that, being possessed of a divine soul, its nature is essentially contradictory to that of the animal organism from which Fate has determined its escape either to misery or to bliss.

But a closer inspection of the scientific nature of the soul, the author of this work believes, leads not necessarily to one or the other of these deductions, but to what might be regarded as a contradiction or

a compromise. He believes that a deeper analysis of the nature of the cell, such as the biologists of recent date have revealed to us, discloses the fact that the cell itself consists of a substance of such manifold potentiality as to permit an interpretation of it as the residence of a psychic activity which may be regarded as the soul of the cell.

He also believes that in the composite aggregate of all the brain and nerve cells of the human organism there may be discovered the residence of the aggregate psychic activities of a human being, which may justly be designated as its soul. He finds further as a biological fact, apparently proved and observed in the chemical laboratory, that the substance of which the cell is primarily composed is constantly undergoing a chemical reaction which compells the emission from its surface of a ceaseless flow of radio-active particles, which circulate throughout the entire circumference of the nervous systems and constitute a phosphorescent unity or organism by means of which the will of a human being, as well as that of inferior animals, is exercised.

He also believes that, as science now informs us, this corpuscular aggregation of radio-active particles is the immediate instrument of the will-energy of the cell of life, and constitutes the substantial, albeit, invisible, framework of the self-conscious personality of an individual.

The possibility of such a marvellous organism transcending the limitations of the cell and the coarser body is determined by the energy and persistence of self-consciousness and the dynamic will of the individual.

That we may comprehend the meaning and force of these deductions, let us observe how the nature of the cell discloses a story which logically becomes the basis of the conclusions we have drawn.

The cell is composed, according to the most-recent knowledge, of three distinct planes of activity, and three different kinds of matter through which these activities are exercised. Or if we regard the living organism in its entirety we may say that it consists of three distinct kinds of substance through which are manifested three distinct kinds of energy or activity. Approaching the body from without, we may describe it as composed first of the full-formed and completed material, which we may distinguish as the somatic substance. This is built up from what we may call the somatic cells, whose substance is ceaselessly changing, decaying and dying as they are impounded in the mechanical laboratory of the body. The two substances that compose the inner or nuclear matter and the outer or cellular matter, are carefully distinguished by biologists, and properly classified under distinctive names.*

*"Every cell consists of two essential parts. There is an inner, central *kernel*, which is known by the technical name of the *nucleus*, and a covering mass of living material which is termed the *protoplasm* and constitutes the body of the cell." (C. S. Minot: "Age, Growth and Death," p. 41.)

Haeckel distinguishes these divisions of the cell by the names of *caryoplasm*, for the nucleal centre, and *cytoplasm*, for the protoplasmic cell-body. "The chief process in the evolutionary history of the plasm is its separation into the inner nuclear matter (*caryoplasm*) and the outer cellular matter." As to the distinctive offices which each of these divisions performs, he says: "I regard the

It is the somatic, the constant, visible body with which we have to do, whose presence so much affects our interpretation and philosophy of life. Because we are bound by it, chained to coarse, substantial clay, limited, cribbed, cabined and confined by it, we have suffered the outlook of existence to be narrowed and biased by its seemingly changeless presence. We know it only as it affects us with pleasure or with pain, we exult in it in health and deplore it in disease. Whence it came, what is its history and prophetic end we think we know too well, and suffer ourselves to read in its decaying periods the prophecy of eternal death writ large in the Book of Life.

The external, somatic body has but one story to tell, the story of birth, growth, age, decay and death. It is superficial, immediate, opaque. It presents no perspective, no distant views, no vanishing vistas. It occupies but a hand-breadth of space, a closely knit mass of compounded unities, distorted by accident, annihilated by catastrophe. A structure of seeming strength and resistfulness, its duration is but for a day, its history but an instant of time, its memory a fading phantom.

"We are such stuff as dreams are made on,
And our little life is rounded with a sleep.

chief cause of this important differentiation of the plasm, the accumulation of hereditary matter—that is to say, of the internal characteristics of the plastids acquired by ancestors and transmitted to their descendants—within the plastids, while their outer portion continued to maintain the intercourse with the outer world. In this way the inner nucleus became the organ of heredity and reproduction, and the outer cell-body, the organ of adaption and nutrition." ("Wonders of Life," p. 138.)

Such is the story and doleful prophecy of our outer, somatic frame.

It is not, however, religion or imagination that speaks and tells us of an inner and a more enduring structure, but science, which seeks ever to be the voice of truth. There is within this outer somatic framework—within this visible, opaque, decaying form—another body, so to speak, another structure composed of cells whose substance is more primary and subtle than that that builds the structure of the outer body of the cells. This substance is so different that it is easily distinguishable both because of its constituent elements and because of the history that it records. Whereas the substance of the outer or somatic body is immediate, visible, coarse, opaque and instantly discerned by the natural senses, the substance of the inner structure is precisely the opposite. It is transparent, so that it cannot be detected under the microscope, it is not even properly described as material, for its quality is what is called colloidal or viscous, which is so different from ordinary matter that it cannot be classified as solid, liquid or gaseous. It is therefore designated as semi-material. As Haeckel says: "The physicist distinguishes three conditions of inorganic matter—solid, fluid, gaseous. Active, living protoplasm cannot be strictly described as either fluid or solid in the physical sense. It presents an intermediate stage between the two which is best described as viscous; it is compared to a cold jelly or glue in solution."

While of course it is a material substance, yet its

consistency is so refined and subtle that its presence cannot be detected even by the microscopically aided senses, and may therefore, in a fashion, be regarded as occupying a plane which is semi-material because of its native invisibility. For these modern biologists are not referring, when they speak of this substance, to what the earlier investigators called protoplasm. The element which we are now indicating, seems to be regarded as a still earlier phase of undifferentiated primal living substance, which by way of distinction they now denominate *plasm*, at least according to Haeckel, and describe it as being wholly without structure or detectable even under the strongest microscope.*

*There is not as yet absolute agreement among biologists on this disputed point. A few, like Minot, insist that the hypothetical substance is imaginary; he vigorously attacks the whole school of German biologists who differ from him. However, the weight of argument and evidence seems to be against his conclusions and none battles more earnestly for his conviction that this molecular, invisible, living substance exists than Haeckel, chief among the realistic biologists. He seems to have written his great book, "The Wonders of Life," for the especial purpose of defending the theory, for everywhere throughout its nearly five hundred pages the argument crops out: "This invisible and hypothetical structure must not (as is often done) be confused with the real and *microscopically discoverable* structure of the plasm, which is of great importance in the question of organisation The earliest ancestors of all these elaborate nucleated cells were at first, simple, unnucleated cytodetes, such as we find to-day in ubiquitous monera. . . . Naturally this lack of a visible, histological structure in the plasma-globule of the monera does not exclude the possession of an *invisible* molecular structure. When we find many biologists still conceiving protoplasm as a mixture of many substances, the error is generally due to a confusion of the chemical idea with the morphological, and to a belief that certain structural features of the plasm are primary, whereas they are only secondary, products of the *vital*

Within this substance abides the citadel of life. This is the only living matter in the entire organism. Here is vital continuity unbroken, constant, the giver of life and the maker of that that feeds on life.* This living substance is spread throughout the inner surface of the organism, being the essential element and central abode of energy within each of the somatic cells. Within this element is no decay, no disintegration, no decease. It is the very essence and substance of vital energy.

Some biologists, as Weismann, go so far as to as-
process itself in the cell-body. . . . The true protoplasm, or viscous and at first chemically homogeneous substance, *cannot*, in my opinion, have *any anatomic structure*. . . . We can *see* nothing whatever of the chemical molecular structure of the plasm, even under the highest power of the microscope; *it lies far below the limit of microscopic perception*. . . . Nevertheless, no expert scientist *has the slightest doubt of its existence*, or that the complicated movements of the sensitive atoms and the molecules and groups of molecules they make up, are the causes of the last changes which these tiny organisms effect in the tissues of the human and the higher animal body. . . . At the close of these observations, . . . I emphasise the fact that the *structureless plasm-body* of the simple monera has *no sort of organisation* and no composition from dissimilar parts co-operating for definite aims" (pp. 31, 34, 203, 208).

*Minot, while he admits the material unbroken continuity of life, because of the cell-structure, still questions, apparently, the independent vital energy of protoplasm unless sustained by a nucleus. But Haeckel insists that he has discovered species and presented their portraits in his books which are wholly unnucleated, mere "globules of plasm," or "naked plasm," as he calls them. Minot does not meet this point and disprove it. There seems to be positive evidence that the continuity of plasmic life is constant and unbroken. In a private letter to the author Prof. Minot merely asserts that there is no proof of the absence of nucleal matter in life units. He contends that Haeckel's views are erroneous—but presents no proof to sustain his assertion.

sert that the substance of which the vital centres in a living body consist did not originate within the existing life of that organism, but descended from the first particle of living matter that was generated on the planet. Bit by bit, infinitesimal dot added to infinitesimal dot, throughout the nameless centuries since primordial life began, it descended from one generation to another, till the vital spark which ignites in the last child born on the earth is but a late manifestation of the one substance that first somewhere bubbled into expression in the far wilds of azoic zones.

While this doctrine is now called in question, and it is believed that recent experiments disprove the truthfulness of the theory, (to this we shall shortly return), yet this is certain, that so long as the human organism coheres as an individual unity, the living matter that knows no hint or taste of death surges throughout all the throbbing avenues, cells and tissues of the body, nowhere suffering a crevice, however inconceivably slight, within its contiguous and all-pervading substance.

It is gratifying to learn from biology that there is indeed a region within the ever decaying and dying structure of the human frame, where neither death nor decay are known; where at least as long as the heart beats, the nerves palpitate and the brain throbs, life is constant, persistent, inextinguishable. And it is doubly reassuring to learn that the mysterious substance which holds within its nature the sense of deathlessness, occupies not a minute and infinitesimal region of the system, but that its

presence is demanded in every minutest portion of the body,* save only where the tread of death is heard in the outlying regions of the dying somatic cells. The conquering, surviving, transcendent cells, are not the somatic, but as we shall call them for distinction's sake, the *plasmic* cells.

We are so built then that we have a somatic or outer body and a plasmic or inner body. The outer is manifest, visible, immediate, opaque; the inner is invisible to the unaided senses, remote, transparent.

The one is the body of death; the other is the body of life.

Vivid as is the picture of physical life which we are permitted to entertain from these recent bio-

*Dr. E. B. Wilson, in his celebrated and authentic work on "The Cell," throws much light on this disputed problem: "Though the tissue cells," he says, "are often apparently separated from one another by a non-living intercellular substance, which may appear in the form of solid walls, it is by no means certain that their organic continuity is thus severed. Many cases are known in which division of the nucleus is not followed by division of the cell-body, so that multicellular cells or *syncytia* are thus formed consisting of a continuous mass of protoplasm through which the nuclei are scattered." Again:

"Mrs. Andrews (1897) asserts that during cleavage of the echinoderm-egg, the plastoderms 'spin' delicate protoplasmic filaments, by which *direct protoplasmic continuity* is established between them subsequent to each division. These observations, if correct, are of high importance; for if protoplasmic connections may be broken and re-formed at will, as it were, the adverse evidence of the blood corpuscles and wandering cells loses much of its weight. Meyer (1896) adduces evidence that in *Volex* the cell-bridges are formed anew after division; and Fleming has also shown that when leucocytes creep about among epithelial cells they rupture the protoplasmic bridges, which are then *formed anew behind them*." (p. 58 ff.).

logical discoveries, the splendor of it is heightened almost into a glory when we contemplate other and still more amazing properties of this mysterious substance. The picture which here follows is not the product of a heated imagination, the frenzy of a religious poet, or the fancy of a transported idealist. It is the sober and unvarnished truth as science is forced to reveal it. And yet it carries with it such a fund of stupendous suggestiveness, bearing not only on the present life, but prophetically on a possible life to be, that we had almost said it opens a new and inspiring chapter of human existence.

For we are to learn that not only is our human frame organised with an outer, visible body, of opaque substance, decadent and dying, and with another inner, invisible body, consisting of transparent, inherently living matter, but with still another body, incomparably finer, sublimate and tenuous.

Could we peer within the profound depths of our physical being, and behold the recondite centre of life, we would see not what courses on the surface of the outer flesh, but witness a scene of transcendent beauty and brilliance. What know we of light upon the outer surface of our bodies save that which is borrowed from luminous objects elsewhere? The sun illumines the countenance and the skin of man, and from their sheening surface draws back again his reflected beams. But the outer sun has never, save indirectly, penetrated the inner citadel of human or animal life. Yet could we gaze within, and had the eyes to see, we should

behold a resplendent form, in figure and contour precisely like to that without, but all aglow with electric radiation, shooting forth in millions on millions of infinitesimal particles, each a centre of inconceivable activity.

Vibratory rays of glory are constantly flying forth between the cells, irradiating each other with a halo of light, while within the cell itself something like electric charges are glorying the mother-substance of organic life, surrounding it with a phosphorescent light of wondrous hue. Nor is this body luminescent only with a static splendor. It is the very action, the ceaseless interplay of ever-moving elements, the constant confluence of irradiating particles, streaming along the thoroughfares of life, making iridescent the paths of the nerves, setting aflame the throbbing brain, till very life consists of action,—action that ignites the living elements.

My words may sound too much like figures of fancy. I will, therefore, produce here a strictly scientific description, free of all tropes and metaphors. Dr. C. A. Stephens in his remarkable work, "Natural Salvation," speaking of the phenomenon on which I am descanting, says:

"Around and throughout the affiliated mass of brain cells there is a swift 'circulation,' so to speak, of the emitted free corpuscles, comparable to an eddy or vortex, ensuing practically instantaneous, reciprocal action of cell on cell. . . . Within its containing walls of bone and membrane, the brain is charged and electrified by this scintillant aura of

free corpuscles which fly to and fro with the velocity of light. The mazy arborisations of the neurons—their interlaced fibrils, making protoplasmic contact—facilitate the process. . . . It now appears to be a swift circulation of corpuscles. . . . This circulation or scintillant eddy appears to go round a centre or axis. . . . It is akin to the 'circulation' of corpuscles (electrons) which goes round a magnet."

Couple this statement with the fact previously presented that the corpuscles thus emitted are radioactive, or radiant matter, which induces phosphorescence in the protoplasm, and it must be evident that the picture of internal splendor which I above attempted is not an exaggeration of a scientific fact.

We are instinctively reminded of the religious notion that the soul has always been conceived of as light, and the imagined home of the redeemed deceased, the heavenly paradise, has always been portrayed in dreams of glory. This is of course a mere accidental coincidence between a primitive religious notion and a scientific discovery, nevertheless I cannot refrain from remarking upon it as a really curious fact.

CHAPTER XXVII

BIOLOGY OF THE SOUL

We have thus far learned that science is furnishing us with positive data which establish the fact of gradational planes of life within the human organism. It is not alone, we have found, that these physically distinguishable planes of vital activities exist, but that these activities are also functionally contradistinguished in the evolution of human life.

If a premeditated purpose cannot be affirmed of Nature's processes, it cannot be denied that there is method in the process. If, therefore, the activities of these diverse planes of our organism are contradistinguished it must have resulted from the diverse functions to which such activities have been directed. And this is what we find to be true.

As we have already seen in the study of the cell, one of its divisions is devoted to the work of keeping in touch with the outer world, in receiving nutriment and supplying aliment to the exhausted tissues. This is the portion of the cells that has built up what I have called the exterior or somatic body, whose business is to attend to the immediate drudgery of our objective existence. This body, as I have said, is the expression of decay and death, its substance is ceaselessly dissolving, subject to the elements, victim of disintegration. It is constructed not only out of microscopical life-units, or cells, but the fibres, tissues, membranes, muscles,

nerves and organs, together enter into the arrangement of a complex and symmetrical mechanism, called the physical body, whose several parts are joined like those of a machine, especially to work, as would a similar machine made out of inert materials and appropriately motored.

Descartes in his "Discourse," rather grotesquely described the human mechanism by comparing it with the automata sometimes constructed for artificial purposes:

"The animal spirits . . . pass into the nerves and are distributed to the muscles, causing contraction, or relaxation, according to their quality. . . . In proportion as these spirits enter the cavities of the brain, they pass thence into the pores of its substance, and from these pores into the nerves; where, according as they enter, more or less, into one than into another, they have the power of altering the figure of the muscles into which the nerves are inserted, and by this means of causing all the limbs to move. Thus, as you have seen in the grottoes and the fountains in royal gardens, the force with which the water issues from its reservoir is sufficient to move various machines, and even to make them play instruments, or pronounce words according to the different disposition of the pipes which lead the water."

And this is not at all an inept or unintelligent description of the nature and work of the human organism when regarded as an instrument devoted to the expenditure of certain amounts of energy for certain material achievements. This is precisely the characteristic and destiny of the outer, palpable, cellularly constructed, or, as I have chosen to call it, somatic body.

Therefore at intervals of its work it requires rest, for much of its substance has been exhausted; at night it requires several hours of absolute relaxation and slumber, else it could not perform the work expected of it the following day. More than two-thirds of its career is devoted to rest and sleep, when it must sink down into partial or complete unconsciousness that certain involuntary forces may set to work to supply the demands made necessary by the exhaustion of its energies.

It is at these intervals, these junctures of partial disintegration of the somatic body, so suggestive of the final sleep and cessation to which it is ultimately destined, that another and more subtle organism within the body finds opportunity for the expression of its energies.

For the plasmic body, the body of invisible and even hypothetical substance, is the supply source, the fountain of re-invigoration, the reservoir of restoration. It never requires or knows an instant of rest; it never sleeps or pauses, but like the atmosphere that circulates round the earth, it moves on forever throughout all the avenues of life, permeating and surrounding all the organic units of the animate body.

It is composed of a most marvellous substance which is ideally deathless, and receives into its invisible centres the ceaseless impressions of the outer, fibrous and muscular frame, which it retains indelibly as the deep buried secrets of human life. It responds instinctively to each nervous, mental and muscular impulse, retains the inerascable record of

their careers, labelling them as states of consciousness, and builds up within its subterranean chambers the residence of the mysterious sub-conscious mind.

Here are written over and over again, as on the scroll of an ancient palimpsest, the oft oblivious and forgotten desires, thoughts and deeds of each individual life, to reign perhaps as Nike or Nemesis, in triumph or revenge.

The writing is there; no finger can erase it; not even the finger of eternity. It may be lost to consciousness, it may not be discernible in the physical structure, it may be as foreign to the sense as impenetrable vistas of the unseen; yet it abides its time; uncalled, uninvited, unobtrusively, it returns when least expected, a forbidden ghost to terrorise or a welcome angel to inspire. These are its offices—these its destined duties. It is the basis of all consciousness, without it man had not known himself.

This may seem a startling statement; yet it is true that within the subtle elements of this mysterious substance must be sought the physical basis of the phenomenon of consciousness; for impressions on the outer or somatic frame that cannot penetrate to the depths of this inner, plasmic realm leave no trace behind on the tablets of memory.

We have already referred on page 120 of this work to the physical origin of consciousness as interpreted by biologists, and will not again obtrude the argument on the reader. Suffice to say that unless the impression made by mind or muscle on the substance of the nerves be sufficiently intense to vi-

brate the deeper protoplasmic centres of the cerebral cells, it will not be recorded on the scroll of life or echo through the halls of memory.

At this place I must interpose a word with reference to the above intimation that the substance of which the plasm is composed is ideally deathless. Readers of my former book will recall that on that theory, deduced from the nature of the living substance discovered by biologists, I founded the possibility of the survival of the plasmic body when the palpable physical body shall have expired. I said in that work:

"The force that we call vital and the activities that we call psychic, are exercised in what is known as vital substance or living matter. It is the transparent, invisible replica of our exterior frames, which, as we have seen, occupies a thin layer of space throughout the continuity of our organism, just exactly like it in configuration, yet ever invisible on the plane of matter, and constitutes the field where our vital and mental faculties are exercised.

"This invisible duplicate of our exterior frames consists of vital matter that has never known death; it is an immortal substance, having been transmitted to our personal organism from the first bit of living substance that was formed upon this planet. It consists of deathless plasm, or germinal matter, constituted of millions and millions of infinitesimal cells, each of which has its own independent and self-sustaining vital and mental organism, and has lived myriads of lives and assumed illimitable personalities." ("Modern Light on Immortality," pp. 430 and 431.)

Some of my critics have raised serious objection to this fundamental basis of the theory I have ad-

vanced, because it is contested that biologists have proven its falsity and discarded the theory of the immortality of vital matter. If this be so I shall certainly not gloss over it or keep my readers uninformed. I am not, as I have repeatedly said, both in this and my previous work, attempting to bolster up a theory, but merely striving to find the truth. We must therefore see just what biologists have discovered and learn whether it disproves the fundamental statement I presented.

The problem of the deathlessness of primal matter is, indeed, at present, one of the great issues of the biological world, and it is not to be disputed that there are opposing parties sustaining opposite theories. For instance, Weismann advanced the notion that all existing living matter descended from original living substances in the germ cell and therefore no new living matter has ever been evolved since it was first formed on the planet. But E. Maupas, a French biologist, contended that he had proved the germ-cells did grow old and finally die, the same as all other cells; that they did not possess the power of rejuvenating themselves and continue to live after a certain period. Dr. G. N. Calkins experimented in this country with a view of testing Maupas' conclusions, and his results seemed to justify his agreement with Maupas. He admits* that "the germ cells give out and so lead to 'germinal death' of the race." However, Calkins allows for the fact that his experiments are not final, and that there is a great probability more extended experimentation would upset his conclusions.

*"Journal of Experimental Zoology," 1, 3.

But directly in contradiction of this conclusion another equally authoritative standard in biological science, in this country, Prof. Morgan, contends* that "when an animal reaches a size that is characteristic for the species, it ceases to grow, and it may appear that this happens because the cells of the body have lost the power of growth. That cessation of growth is *not* due to such a loss of powers is shown by the ability of many animals to regenerate a lost part. . . . There can be no doubt that the loss of power is *not due* to the *loss of the power of the cells to grow*, but rather to something that inhibits their growth."

In Dr. C. S. Minot's recent work, "Age, Growth and Death," he stoutly contends for the demonstration of the decay and death of germinal matter, and introduces a wholly new interpretation of the cause of senescence and decease of the life-cells.

It is too long an argument to explain here, but so far as the fundamental thesis of this work, and the theory I am founding on it, are concerned, I do not think the conclusions of Minot or Calkins, if they were finally demonstrated to be true, would affect them.

For Minot emphatically contests the hypothesis that there is such a form of living matter in nature as a cell of life without a nucleus. His conclusions rest on that assumption, for the substance of his theory is that cells grow old, decay and die, because the nucleus finally dissolves and is buried in the over-abundant protoplasm which surges around it

*"Experimental Zoology," p. 277.

in the cell. This process of decay and death he calls "cytomorphosis." With the dissipation of the nucleus, he contends, the power of vitality ceases, for a pure cell of protoplasm without a nucleus does not exist.

In this contention, however, he is vigorously opposed by Haeckel, Bastian, Alex. Braun, and many others. Braun and Bastian both say they have seen the nucleus evolved from a naked cell of plasm, before their eyes.* The experiments of biologists such as those of Calkins and Minot, do not, therefore, afford any fact that necessarily conflicts with the conclusions I have made concerning living-matter or the theory I have deduced from them. For their experiments do not prove that the primal living substance, that is the germ-plasm, or as Beale called it a generation ago, bioplasm, (the ever living substance, as opposed to protoplasm, the dead product of organised bioplasm) becomes old, decays and dies.

The critics of my former book, who thought that the most recent experiments of zoology had disproved the fundamental principle on which I founded my theory, must needs, perforce, wait for more radical and revolutionary laboratory proofs, before they repeat their slurs. These very biologists themselves, although they contend that all cells, the germ cells as well as the rest, finally expire, yet admit that death is not a natural principle, but is an after-introduction in the process of vital evolu-

*"Nature and Origin of Living Matter," Watts and Co., 1910. pp. 18 to 29.

tion. "Death is not a universal accompaniment of life," says Minot. "In many of the lower organisms death does not occur, so far as we at present know, as a natural and necessary result of life. Death with them is purely the result of an accident, some *external* cause. Our existing science leads us, therefore, to the conception that natural death has been acquired during the process of evolution of living organisms."*

We are therefore manifestly safely within scientific limitations when we assert that vital matter, ultimate living substance, is inherently deathless. We know that this substance, protoplasm, (or primal plasm), constitutes the ground-work of the entire organism of living beings. We have seen that it spreads its way with myriad and incalculable threads and bridges throughout all the divisions and tissues of the living system. There is not a space, probably, of the most infinitesimal quantity, which is not covered with a minute film or portion of living substance. Nor is the office of this plasmic matter, apparently, merely to give vital force to the other factors and cells of the organic system, but it seems to become the immediate instrument for the mental and emotional activities.

The moment of consciousness is not attained till the vital agitation is sufficient to pierce the outer somatic cells and send a thrill of agitation into the inmost plasmic centre of the living cells. We do not know what goes on within us till these profound depths of our mysterious physical organisation

*"Age, Growth and Decay," pp. 214, 215.

have been penetrated. The cells of the brain and the central nervous system, cells which have evolved through countless centuries from the first skin-cells of the body, through all the inferior grades and ganglia, till at last they have attained the crowning height of the human cerebrum, these cells are vitalised by a magical substance which is at once the only recipient and registry of whatsoever transpires within the conscious realm of the human mind. They are not only impressed by the mental and emotional activities of the living being, but they become the actual book of life, in that therein are written all the feelings, thoughts, emotions and reflections which have agitated the conscious soul and inspired the ambitions of man.

And herein, too, are indelibly impressed, not only the waking, palpable, immediate activities of the conscious mind, but even the subtle workings of that deeper and more recondite mind, which is made up of the sequences and effects of the daily thoughts, reflections and sensibilities of active consciousness. Here is the physical Book of Life, retaining all the buried secrets of one's years, as well as the open page of the immediate moment.

Here, then, we discover the physical basis of consciousness, both subliminal and superficial, both the present and the past.

CHAPTER XXVIII

SCIENTIFIC DISCOVERY OF THE SOUL-BODY

But what we must now contemplate is the still more marvellous phenomenon of the nature and office of what I call the corpuscular body. This is the interior organism consisting of the normally invisible particles which circulate round and round the entire system of the cerebral and nervous cells, impinging with terrific force upon the vital substance within and causing it to become phosphorescent, setting aglow, had we the eyes to see, the mysterious depths of our bodies. Were this not a coldly asserted fact of physiological discovery we would be inclined to regard it as the purest romance. But being a fact, it is our duty to consider it, and learn if we can, its meaning and its office. We have already hinted, that the office of the somatic cells is to build up and operate the mechanical structure of the muscular body, and that of the plasmic cells to receive and record the impressions of conscious and sub-conscious activity, while that of the corpuscular elements seems to be directly related to the volitional energies of the mind, or the activity of the will.

If this proves to be biologically true it must suggest much to the intelligent student. We know that all the cells of the body are specialised by a marvellous division of labor. We know that none of these

systems of cells interferes with or obtrudes on the other. We know that each organ of the body has its own peculiar cells, and that specific functions of the system are operated through distinctive cells. We also know, in particular, that the cells which constitute the organ of the mind, the brain, are the most highly specialised, complex and refined of all the cells of the human system. We know, too, that within the brain certain sections or areas of the cells are set apart for particular work, such as the cells of sight, the cells of smell, the cells of speech and the cells of thought or consciousness. We know that not only are these cells wholly distinguishable, under the microscope, because of specific differences in their characteristics, but that the functions which they perform are conditioned on these differentiations. Why should it, then, be remarked as extraordinary or unnatural that these cells are directed to their specific work by an energy impinged on them through the movements of the corpuscular elements that surround them? I have already called attention to Le Bon's statement that the cells of the vital organism seem each to be directed by some interior reigning power to the specific work they are to accomplish, and that they seemed to be ruled by an intelligence that pertains exclusively to their own requirements.

In the study of the phylogenetic evolution of the cells we discover how this intelligence has slowly developed till it has become specific within the individual organism of each unit of life. But what is here especially to be considered is the fact, sus-

tained by laboratory experimentations, especially those of Dr. C. A. Stephens, that the energy of the will of each of these cells, particularly the brain cells, is directed by the corpuscular or radio-active particles which surround and surcharge them.

Could this once be established it would seem to prove that the will-force, the most powerful energy in the living organism, is actuated through the instrumentality of these swiftly flying particles, which consist of the minutest and most subtle elements of living matter. It would seem to indicate that these particles are specialised for the manifestation of the volitional energy, and that the will directs, co-ordinates and organises them as it determines. They may be said to be the physical embodiment of the will, and therefore the most highly specialised and complexly organised of all the elements of living matter. In order that we may fully grasp this marvellous fact and trace its far-reaching force in the possibilities of human existence I would call attention to the result of the labors of Stephens and others in biological laboratories. Stephens seems to be fully satisfied that in the activity of the nerve current there is something more discharged than merely the electrical energy which can be detected by the galvanometer. He thinks there is another and far more subtle charge that accompanies the electric, which is radio-active or more closely allied to a pure ether radiation. The corpuscle of negative electricity is merely the smallest unit of matter at present known, but science is teaching us that this discernible corpuscle

is itself in all probability a composite of still smaller units or corpuscles, each of which is still closer to pure ethereal substance. "The ether is an element far below the corpuscle, from which the corpuscle is developed," according to Mendeleif. We need merely to hold in mind that the hydrogen atom, until to-day supposed to be the smallest known unit of matter, is itself now known to consist of a thousand units, each one the one thousandth division of itself, to realise how infinitesimal and volatile the probable ethereal unit of the present recognised corpuscle of negative electricity may be.

These corpuscles have a tendency to aggregate and circle around a central axis, forming a sort of minute solar system. In this association they organise a distinctive force (determining specific action, especially in the cell of life), which can be described only as the will of the cell.

In view of certain phenomena, associated with the act of "*willing*," Stephens says he has been drawn to a working hypothesis to the effect that when the energy of the will is exerted it consists of the *liberation* of the *etheric corpuscle* in the cell, which is the active agency of the will force. The picture here to be drawn is that when the will acts it is physically represented by a flow of radio-active corpuscles along the path of the nerve cells, organised into specific and self-determining centres of feeling. As Stephens says, all we know at present about the ultimate nature of matter indicates to us that it is but a mode of energy, which at bottom is but a "sentient impulse"; that is, an expression

of feeling. We shall never, of course, be able to see pure sentiency or feeling, but instruments will yet be invented, he prophesies, which will show us the minutest details of vital action. But the minutest corpuscle of matter, vital or inert, possesses in a low degree the impress of sentiency; that is, an expression of life. Each infinitesimal corpuscle, or unit of matter, is in its little way an individualised life. Each is so related to all other units and to the entire universe that each pursues the apparent purpose of its existence and thereby establishes the contiguity and integrity of the cosmos. What is it, then, that causes these infinitely minute particles of matter so to associate and co-operate that each seems to be decided by a selective sense, a determining will? Le Bon reminds us, speaking of the minute life cells and the wonderful work they achieve in a vital organism, that "the scholar capable of solving by his intelligence the problems solved every moment by the cells of the lowest creature would be so much higher than other men that he might be considered by them as a god."*

Ignorant persons, who read such a startling deliverance of science, knowing no other explanation, instantly insist that such facts demonstrate beyond a question the superintending activity of a personal Supreme Being. But science is not satisfied with such explanations, as the agent so described cannot be found in the chemical or electrical laboratory. Hence it looks farther and thinks it begins to discern a more excellent way.

*"Evolution of Forces," p. 363.

What has actually been discovered, thus far, is that in the discharge of an electric current *something else* accompanies it. It consists of an electric current *plus* a finer charge, which has been called an emanation. This is true not only of inert matter examined in the electric laboratory, but also of vital matter. Nervous currents, as already intimated, evince that they are an electric charge because they respond to the electroscope, but it "is much modified," says Stephens, "as it bears along with its component corpuscles a 'charge' of something more ethereal."

Now what is this charge of plus-electrical energy, this pure ethereal emanation? We are here touching the outmost edge of matter, and must not forget that it is also the most refined expression of vital energy. "The cell of life everywhere gives rise to similar currents of energy." And what are these currents? They are what are now known as radio-active emanations; that is, of the expression of energy which is liberated when the ultimate atom is torn to pieces, and gradually suffers a separation between its positive ions and its units of negative electricity. This we are told is the most tremendous energy in nature. From it results, Le Bon informs us, all the forces known to science—solar heat, electricity, cohesion, chemical affinity. This energy is liberated, when the ultimate unit of matter—the atom, which has been built up bit by bit for countless aeons, is again slowly dissevered, or torn to pieces. To form some idea of the immensity of this atomic-locked energy,

which escapes when radio-activity occurs, think of what Lord Kelvin told us. A grain of hydrogen, which is the lightest of all known substances, contains sufficient energy to lift a weight of a million tons to a height of more than three hundred feet! Think of it. As Stephens justly exclaims on contemplating this fact: "Indeed, all our previous conceptions and estimates of energy are so dwarfed by these later revelations of science, that one stands appalled by the immensity of Nature's resources. Our old time atom is a veritable magazine of *vis vita*."

Now, what we are contemplating is the fact that some form of this energy is released in the action of the nerve current and brain activity in living beings. And it is the expression of this energy we see when volition or will force is exhibited. It is this energy in the form of *willing*, we learn, which is manifested when the minute cell of life performs its instinctive work. It is the *directing* power of the corpuscle that instigates and *determines* the activity and office of the cell. And this is done because of the release of energy in the severing of the ultimate units of atoms of the protoplasm; for the energy we are here referring to is far more profound than that of the chemical actions in the cells themselves. In chemical reactions merely the architecture of the cell is effected, or modified; but in radio-active conditions we are witnessing the result of the disruption of the atoms which compose the molecules of the protoplasm in the cell. The will or volitional force seen in the cell is, we are told,

the energy that is generated in the disruption of the ultimate protoplasm molecule.*

The point, then, to which I wish to direct attention, and the conclusion from the above which I wish to deduce, is, that as the current of energy, liberated in each cell, is the determining factor of the life of that cell; and, as the cells co-ordinate and associate in individualised groups, and in aggregations of groups with groups, to institute the complex organisation of a living, conscious human or animal being; there has been, as a consequence, established what I may call an *aggregate Will*, or a *centre of self-determining consciousness*. This will and this consciousness are naturally proportionate in energy and endurance to the affinity or coherence which exists among the cellular units. The less the affinity the less the energy of the general will—the greater tendency to evince the separate energies of the rebellious individual cells. The firmer the affinity or attraction of the cellular units, the stronger and more enduring becomes the common will of the aggregated cells.

In addition to that deduction I wish also to emphasise the point that the association of the cell life into one commonwealth of individual consciousness is accompanied, as we have seen, by the ceaseless discharge along all the avenues of the vital cells (the nerve and brain currents), *of a corpuscular or ethereal emanation, which determines by its energy the activity and unity of the common organisation.*

*Stephens: "Natural Salvation," p. 139; LeBon: "Evolution of Forces," p. 365.

The picture to be imagined is that of an ethereal, phosphorescent form composed of corpuscular vibrations which all together build up a spectral shape precisely like to the coarse fleshy form of the body, but wholly invisible, occupying the interior circumference of the physical organism.

Scientifically discerned, then, there is a corpuscular ethereal form within the human body which is energised by psychic activity; in short, a soul-body. On scientific grounds it seems to be a logical and workable hypothesis that such an ultra-refined or "spiritual" body exists in every human being. Its material substance consists of nothing but a spectral emanation, which, according to all definitions of matter heretofore known, must be regarded as super-material. Its appearance, could it be seen (as biologists prophesy it sometimes will by the use of instruments not yet invented), would be luminescent or radiant, perhaps like that of the subtlest fleecy cloud drifting over a deep blue surface of sky, shot through with radiant sunlight. Though, of course, a cloud is not lit from within as phosphorescent material is.

If we may be permitted, on scientific grounds, to call this spectral, phosphorescent form, the soul-body, then we must add that it is energised by the intense activity of the corpuscles of which it is composed in the form of will force, or psychic activity. Hence it becomes the axis of the personal self, or the invisible material instrumentality of the self-consciousness of the individual.

We must, therefore, seek and discover, if we can,

how this spectral form may disclose its inherent will-energy in the actual and possible manifestations of a living organism. The normal psychic activities we recognise in the usual forms of mental action,—sensation, perception, thought, volition, reflection, imagination, etc. These forms of thought, as elements of consciousness, we have learned, exercise motions which are registered in the interior substance of the brain cells, leaving therein their indelible records, which become the potential elements of the sub-conscious self or personality. The form of thought remains permanently embodied in the susceptible substance of the cells; that is, in the protoplasmic matter.

So long as this pure plasmic substance exists in the human organism it is susceptible of recall in the memory acts of the consciousness. We are told that an act of memory on its physical side means merely the bringing together again of the identical cells in the brain that formerly associated in the exercise of the original thought. But the memory is never possible unless the same cells are again aggregated in the same cortical centres of the brain. This is physiologically the physical basis of memory. Nevertheless, the question still unanswered is, What force brings together again the same cells in the return of memory to the consciousness?

From the analysis and description we have above given, of the corpuscular elements as the direct instruments of the energy of will, it must be evident that the force which actuates memory is this inherent energy in the cell, which, we have seen, is itself

the exercise of will-power and constitutes the source of all the intelligent performances of the wonderful cells of brain and body.

In short, we learn that each spectral unit of the corpuscular body is actuated by an inherent volitional energy, and that the entire spectral or soul-body (as we have called it) is exercised by an individual or personal will-energy; again, that the united psychic activities of the body are exercised and directed by a common or centralised will-power, which constitutes the reigning or sovereign power of the total organisation.

Have we then discovered all the possibilities of the corpuscular will-energy in the ordinary or normal psychic work of human beings? In short, may we look to this curious soul-body, or organisation of ultra-electric substance, as the real source of the extra-normal performances known as psychic phenomena?

In previous chapters we have reviewed practically all the different phases of these phenomena, and now we are to enquire whether we have discovered a natural energy or element, within the human organism, to which we may, on the warrant of science, refer them.

What is to follow may be a venturesome and daring deduction; nevertheless, we are inclined to believe that science is close on the heels of these uncanny executions and will shortly explain all of them, that are genuine, within the mysterious confines of the physical laboratory.

And, after all, are not the mysteries and achieve-

ments of the scientific laboratory far more interesting, not to say reassuring, than the exhibitions and wonders of the psychic seance?

CHAPTER XXIX

TENTATIVE SCIENTIFIC EXPLANATION OF PSYCHICAL PHENOMENA

I shall now venture, perhaps with considerable risk, a tentative explanation of psychic phenomena, based on present discoveries in the biological and physical sciences.

The first fact which we must note is, that the so-called soul-body, or the organisation of the ultra-electric corpuscles, which I have discussed above, consists of spectral, invisible, radio-active substance. The second point to be remembered is, that this corpuscular stuff, this radio-active emanation, which constitutes the soul-body, is itself the expression of a will-energy, or a volitional force.

The problem before us is, then, given a subtle, ultra-material, radio-active substance out of which a highly complex living organism is constructed, and an inherent, independent, self-conscious will-force, as the directing power of the subtle body, what are the *possible* acts it may perform?

We already know it can achieve all the common or normal mental and psychic acts of a human life. Our only concern is if it may be possible to show that such an exquisitely refined body, as we are conceiving, so mysteriously controlled, is sufficiently furnished with the necessary forces to achieve all the extra-normal or alleged spiritistic acts of the psychic seance. Let us, then, summarise as tersely

as we can, just what radio-activity means in nature, what natural phenomena are attributable to it, how far it co-operates with or contravenes the well-known laws of the physical world; then, when we have thus enumerated its qualities, let us see how far they may apply to the possibilities of the corpuscular or soul-body, and to what extent they may explain all the marvellous phenomena that men have been said to witness. The following are the principal extraordinary

CHARACTERISTICS OF RADIO-ACTIVE SUBSTANCE*

a. It consists of an ultra-material emanation—
itself non-electric, but changed into electric particles
(positive and negative).

b. It causes the air to become a conductor of electricity—thus altering its ordinary condition.

c. Its negative rays vibrate at a speed-rate between 60,000 and 180,000 miles per second; the positive rays at about 20,000 miles per second.

d. Exposure to this radio-active substance is utilised in photographic impressions, thus demonstrating its actual existence.

e. Instantly it renders luminous all phosphorescent substances. This is witnessed in the phosphorescence of the living protoplasm as well as in inert phosphorescent substances.

f. It penetrates solid substances, such as steel, and its rays are far more penetrative than those of Roentgen or the X-rays.

g. It can be deflected by a magnetic field.

h. The radio-active emanation can be separated from its original source by rendering tubes phosphorescent and occupying a distinctive space.

*See "Intra-Atomic Energy," Smithsonian Report, 1903; Duncan's "New Knowledge"; LeBon: "Evolution of Matter."

i. Yet while the substance can be thus actually detected or revealed it is so subtle it cannot be measured by the balance. Thus though it may be material, it is imponderable.

j. The radiation rapidly dissolves into electric particles, or disappears, but sets up a different kind of action; that is, electric.

k. The radiation frees itself from the material element from which it emanates, and when thus freed induces radio-activity in other substances.

l. This gaseous radio-active emanation remains on other bodies into which it is induced and circulates.

m. It may remain concealed in some substances, exposed but for a few seconds to the sun, for many months, and may after this long time cause photographic impressions to be made.

Let us now proceed to study in what degree the forms of energy thus enumerated may account for what are known as psychic phenomena. Of course, in this comparison we necessarily eliminate the hypothesis of the presence or manifestation of "spirits."

In order that we may be as terse as possible, we shall take the enumeration of psychic phases discerned through the alleged mediumship of Eusapia Paladino, as enumerated by Lombroso, in his book, "After Death—What?" published almost simultaneously with his decease. This classification will be found beginning on page 90.

The first class relate to mechanical phenomena, as follows:

1. Meaningless oscillation and movements of the table.

2. Movements and rappings of the table that have meaning.

3. Complete levitation of the table to a height sometimes of 78 inches.

4. Movements of different objects very lightly touched by the hands or body of the medium which cannot be reconciled with the exceedingly weak pressure exerted by her.

5. Movements, undulations, inflations of the curtains of seance cabinet, without the possibility of their taking place by means of the severely controlled hands or feet of Eusapia.

6. Movements and inflations of the garments of the medium.

Considering the six phases here presented, and assuming the truthfulness of the phenomena (which, by the way, has been much disputed), I think the discerning reader who has closely followed me in the previous pages has already attributed them to the forms of energy known as radio-active.

We have learned that this form of energy is constantly at work in the human organism; we have seen that it is especially manifested in the activities of the sub-conscious mind, for there lie all the buried experiences of the individual, subject to recall from the protoplasmic bed by the impingement of the corpuscular emanation upon it.

Hence, as this activity is especially exercised in or through the functions of the sub-conscious mind, and, as the activity has its own volition or will-force, as we have learned, and, lastly, as it may direct the corpuscular particles as it pleases, we would expect its highest powers to be revealed during states of trance or unconsciousness.

It is a commonplace that when a man is under the influence of liquor he becomes possessed of extraordinary physical force, before the reaction sets in that destroys the tissues. Under the primal and immediate effect of the stimulant the physical forces are marvellously increased and men will, under such influence, often accomplish what is normally far beyond their muscular capacity.

Likewise the insane are, under certain conditions, endued with almost miraculous strength. It frequently requires all the virility and muscular energy of a man of great physical prowess to overcome a feeble woman, when she is suddenly seized with homicidal insanity. Numerous incidents might be presented, but the fact is so well known that I think I need but state it to have it recognised by the reader.

Similarly we find that subjects under hypnotic control have such extraordinary power over the latent muscular force or energy of their bodies that they can, by the mere direction of the operator, be compelled to accomplish what they could not possibly do in their normal states.

I have seen, let me state by way of illustration, a man of slight build and seemingly frail body thrown into the cataleptic state, then stretched across two separated chairs, in which position he was able to sustain the weight of several heavy inert bodies and human beings that were placed across his abdomen. I saw three heavy men at one time standing upon his abdomen when the body was thus outstretched in cataleptic state, a perform-

ance wholly beyond his normal muscular strength.

During religious frenzies subjects are often seized with cataleptic or somnambulistic spells when they perform acts which are little less than miraculous. There was a sect at one time which so expressed its devotions, in the art of physical endurance, that the votaries were judged by their capacity to have large rocks thrown mercilessly upon their prostrate bodies. If the worshippers were sufficiently overpowered by some strange force, the rocks bounded from their tense muscles as if they had impinged the surface of iron or rocky objects.

It is manifest that some mysterious force is operating in the human system during such crises. What is that force? We have been accustomed to regard it as mysterious, and have therefore been willing to ascribe it to a supernatural or undiscoverable source. It is such manifestations as these which in all ages have induced men to believe in fantastic faiths and irrational creeds. But science slowly creeping on from age to age has now, apparently, also about overtaken this "mystery" and is almost ready to explain it.

The force exercised emanates from the will. But the will is no longer so mysterious as we used to regard it. We are now beginning to understand how it is correlated with the physical energies of the human system.

It is, like all other mental exercises, accompanied by a chemical action which at once registers its effects in the brain-cells and causes the emission of

an interior energy from the centre of the cell. The energy so emitted, we have come to understand as intra atomic force, now recognised as the most powerful and extraordinary of all the discovered forces in nature. What we are, however, especially to study, is the fact that the will force emanating from the sub-conscious mind seems to cause a greater release of intra-atomic energy than when it is emitted by the action of the conscious will.

In the action of the sub-conscious mind the will, apparently, operates through a more subtle medium than in the action of the conscious mind. If we wish to express the energy of the will through an act of the conscious mind it can only be done by means of a nervous discharge evidenced in its effect upon the muscles of the body. By word of mouth, by gesture, or by some conscious mental act we bring about the result of the volitions we express. But the will of the sub-conscious mind apparently requires, in its most effective exercise, no such palpable and coarse instrumentality for its expression. It can produce an effect upon another person without any external expression of its purpose, and that, too, more effectively than when the will force is physically expressed, by the action of the sub-conscious mind.

As, for instance, consider the case quoted by Ochorowics, of a subject treated by Mr. Desart. He found that when he resorted to gestures and passes in seeking to magnetise his subject that his mind was often distracted and his effort only partially succeeded. He concluded that the interven-


tion of his will counted for much; but he desired to learn whether the will alone was all sufficient.

"That was what I wished to know. I, therefore, one day, before the hour set for her re-awakening, and without looking at the patient, without making any gesture, mentally ordered her to awake. I was instantly obeyed. As I had willed, the delirium and the outcries began. I then sat before the fire, my back to the bed of the patient, whose face was turned toward the door of the chamber, and talked with persons present, without appearing to pay any attention to Miss J.'s cries. Then, at a given moment, no one noticing what was going on in my mind, I gave the mental order to sleep, and sleep followed. More than one hundred times was the experiment made, and modified in various ways; the order used to be given at a sign made to me by Dr. X., and the effect was always produced."

Perhaps the direct act of the sub-conscious will of the recipient is more noticeable when tried on children, because in such cases we know it is impossible for any collusion or simulation to be effective. I remember once trying this force myself on a train of cars, when I was seriously annoyed by the cries and screams of an infant on a mother's bosom. She sat directly opposite me and seemed utterly unable to control or silence the baby. I came near asking her to let me see if by handling the child I could relieve it, thinking thus to distract its attention and quiet it. But I thought she might consider the request an intrusion, so I kept my peace. Then I concluded I would try pure mental force and at once began to order the child to be silent, *mentally*,

and after a few moments it fell sweetly to sleep. Naturally such an experiment is unsatisfactory and inconclusive, for one could not tell but that the child had finally exhausted itself and fell naturally asleep. Yet Liebeault describes a case which seems to be more convincing.

"A little child, Louise Meyer, one year old, was presented to us in such condition as we wanted. For four weeks the child had cried night and day, and in spite of the care bestowed on her by a very excellent physician, no change for the better had yet appeared. To us she seemed to have continued colic pains, the result of obstinate constipation. Now and then, perhaps, she would sleep five or ten minutes at a time. During one of these naps, consequently unbeknown to the babe, we prolonged that state, and kept her twenty minutes under our hands till there was a sign of awakening. From that moment, as by enchantment, she cried no more, slept even a good part of the night, and was brought back to us the following day quiet and beginning to have stools. The cure was complete."

 Thus it seems to be true, as Peronnet exclaims, "*The will alone gives efficacy to the act.*"

But we observe that it is the action of the will of the operator on the sub-conscious will of the patient. In short, it is manifest that the sub-conscious will operates through the instrumentality of a substance far more subtle and refined than that which the conscious will employs, or at least it is able to utilise a more effective phase of the same agency. It is capable, apparently, of releasing an interior energy which seems to be beyond the reach of the

normal will, at least to the degree which is attained by the sub-normal will.

This fact seems to prove that a greater amount of this interior energy is released in the sub-conscious action of the will, hence in cases of mesmerism, hypnotism, somnambulism, alcoholism, insanity, etc., we are permitted to witness the startling effects produced by the release of this mysterious and but recently discovered force in nature.

Le Bon and Dastre are both of the opinion that "they must seek in atomic dissociations for the origin of the increase of energy produced by certain excitants, such as kola, caffeine, etc., whose composition clearly shows that they cannot be considered as foods."*

If we wish to discover the seat of the psychic energy we must, then, look to the utmost interior of the vital cell; it is within that mysterious point of ultimate matter that we must discern the release of energy caused by the dissociation of its primal units. "Given the colossal energy of intra-atomic energy," says Le Bon, "we can understand that the cell may become a mighty generator of energy without its composition becoming *perceptibly* altered."

It is this fact which I am seeking to emphasise in the present work and to show that, probably, to this recently discerned energy we may logically attribute all the wonders of psychic phenomenalism. This becomes, as I have above intimated, especially true, when we learn that through the action of the sub-conscious will the greater amount of this energy is released.

*LeBon: "Evolution of Forces," p. 365.

CHAPTER XXX

TENTATIVE SCIENTIFIC EXPLANATION OF PSYCHIC PHENOMENA

(Continued)

Let us now proceed to study the six phases of phenomena enumerated by Lombroso in the light of this tremendous energy latent in the human system. The first of these refers to meaningless and incidental movements of the table under psychic control. That is, when the circle is formed the initial manifestations are merely a vibratory movement in the table, uncontrolled, apparently, by any intelligence. In order to seek the source of the power that generates this movement let us now recall that the emanation from all substances known as radio-active, while not in itself electric, yet is so constituted that it emits electrical particles from its surface. These electrical particles move with great velocity and are endued with enormous energy. In an experiment which we shall soon explain it is shown that these particles are capable of holding a piece of metal in space, contrary to all known laws of nature. Now every object in nature, even the air itself, is radio-active. Every human being is surrounded by a radio-active atmosphere or aura, as has now been proved in the physical laboratory. A "medium," or an agent, through whom psychic manifestations become possible, is probably a person especially charged with radio-active energy. Such a person's powers are most effective when in a

deep trance, a condition, as we have just observed, most amenable to an increased liberation of radio-active energy in the human system. For in such a state the deeper centres of the brain cells, the organs of thought and intelligence, are disturbed, and the chemical action ensuing results in increased radio-activity. Phosphorescent, electrical particles would shoot off at a tremendous speed from these inner centres, the current of electricity thus flowing from the body would generate a surrounding field of magnetism, from which electro-magnetic vibrations might so disturb the ether as to cause the meaningless motions or oscillations of the table over which the medium presided.

That the reader may appreciate the fact that this explanation is not purely imaginary let me state that the most recent discovery in the science of energy is revealing to us the fact that the more intense interior forces of the human system, those especially which exist within the plane of thought and emotions, are released, not by the ordinary chemical reactions that occur in the consumption and assimilation of foods, but by another means. We are told that the ordinary chemical effects produced in a living body are caused by three forms or classes of foods, namely, the "albuminoids (white of an egg, flesh of animals, etc.) ; carbo-hydrates (starch, sugar, etc.), and fats (the different fatty bodies)." But from this ordinary source of sustenance the extraordinary explosions of energy we witness in the exhibition of unwonted physical activity, emotional excitement and mental exaltation, cannot be

derived. These manifestations of force originate in chemical reactions which take place not between the cells of the body alone, but more especially in the dissociation of the substance of the cell, whence arises the radio-active energy as distinguished from the chemical and vital energy of the body. "These intra-atomic energies, set free within the organism, seem of rather exceptional occurrence, and only intervene under the influence of *special excitants*, when the living being is obliged to make a considerable effort rapidly."*

The "special excitants" may, of course, be mental and emotional as well as physical, such as alcohol, kola, caffeine, etc. Under the extraordinary excitement which prevails in the organism of a medium in the sub-conscious, hypnotic or trance condition the intra-atomic energy is released, which causes the emphasised radio-active state above described, that may induce the unusual phenomena mentioned.

In other words, during the trance state the sub-conscious will operates directly on the subtle substance that constitutes the essence of the cell itself, namely, the corpuscular element we have already described. Through such a refined and amenable element it can bring to pass phenomena utterly beyond the capacity of the ordinary elements the organism employs in its customary activities.

We are to remember that all bodies are surrounded by radiant matter; that is, that they emit radio-active energy, in various degrees of intensity.

*"Evolution of Forces," p. 366.

This means that around every object in Nature there is an enswathement of luminous matter, ordinarily invisible, yet at times subject to visible phosphorescence and to the emission of electric sparks in the dark.

We are informed that down to absolute zero every object is thus invisibly radiant, and that the proof of it is found in the phenomenon of photographing the object by no other light than what the object itself affords. The human body is likewise surrounded by such radiant matter, and only because the radiations are so infrequent is its auto-photographic capacity undemonstrable. But we are also assured by recent discoveries that a condition of radio-activity in any object is proof of the dissociation of the ultimate units of matter of which the object is composed. Whenever, however, such radiant matter evolves from atomic dissociation, that is, when intra-atomic energy is released, the phenomenon is always accompanied by the emission of electrical particles. The human body, then, like all other objects in nature, is constantly evolving radio-active energy because of the ceaseless dissociation of the material atoms of which it is composed, and at the same time giving forth a flow of electrical particles.

Now a well-known principle of electrical science is that when electricity is in motion it, under certain conditions, generates a field of magnetism. The surrounding field of magnetism constitutes a centre of electro-magnetic energy, which is capable of exercising mechanical action, and it is profitably

employed in commerce and practical engineering.

Hence, as every human being is so surrounded, every person has some iota of such electro-magnetic energy. But as the dissociation of matter is increased by chemical action, that is, as by such action there is an increase of radio-active energy, and as such chemical re-action is caused by mental and emotional excitation as well as by physical stimulants, as I have above explained, we may understand that when a person is under the exciting influence of the sub-conscious mind, as in hypnotism, trance, etc., there will be an increased generation of radio-active energy, and a consequent intensification of the electro-magnetic force. Hence it is palpable that under such influence there might emanate from a human being a sufficient degree of electro-magnetic energy (far beyond what is normal) to produce the slight oscillation of a wooden table.

The second phase of psychic activity enumerated by Lombroso indicated that the movements of the table, under "control," gave evidence of intelligence and rational meaning. How, without the aid of supposed "spirits," could this be explained? We need but recall that, as already shown in previous pages, the peculiar substance which circulates around the centres of the brain cells, namely, the radio-active element, is the immediate agent of the will-force of the mind. The volition seems to be exercised directly within this element, as demonstrated by Stephens, and would, therefore, be especially subject to the action of the sub-con-

scious will, as that will possesses a volitional energy far beyond the energy of the conscious or normal will. In short, when in a state of trance, (the condition that releases the energy of the sub-conscious mind), the will of the supposed "medium" would be directly exercised on the corpuscular element or radio-active substance. The will through this substance directs the electro-magnetic action, as I have just described at the beginning of this chapter, and thus, instead of causing meaningless oscillations, compels such oscillations to impart the meaning that the mind intends through the direction of the will. Once granting the scientific accuracy of the principle I have laid down in this chapter, namely, that radio-activity within the substance of the brain cells may generate the exterior field of electro-magnetism around the human body, and it may be easily seen that such an amenable substance could be directly energised by the human will to execute the phenomenon of table moving and intelligent control, as the medium or any one who operated through the medium might desire. We know that the intelligence manifested in the unconscious action of the minute vital cells of the body is a thousand times more marvellous than the intelligence which is said to be divulged in any state of psychic control. For the intelligence of the vital cells is beyond the understanding of the most intelligent of human beings. Yet each cell performs its daily and uninterrupted duty, prompted only by a directing energy which is inherent in the substance of the cell. If these myriad cells of life can

be set about their marvellous labors through the compulsion of a cell-will that directs the subtle substance of which they are composed, why could not the collective will of the cells that are subject to mental action and control force them to achieve such extraordinary results as are called psychic phenomena?

The third phase he enumerates relates to the levitation of a table to a great height, without the manipulation of any physical agency. Such a phenomenon, if genuine, is truly confusing and seems to contradict all known laws of nature. Therefore it is at once referred to supernatural or ultra-human agencies. Can we show that as the human system is now constituted it seems to be endued with sufficient energy to accomplish this peculiar act? It seems to me by merely following the principles already discussed we shall be able to demonstrate this also. We must recall that dissociation of matter, that is, the dissolution of the atom, is a constant process in nature. Such dissociation is always the occasion of the release of the intra-atomic energy, now conceived to be the most potent in the universe. The constant dissolution of matter or the ultimate atom is a process no less in vital substance than in inert. Therefore, in the element that constitutes the vital energy of the cell, namely, the plasm or protoplasm, there is a state of ceaseless dissolution which releases the intra-atomic energy within it, and thus occasions the exercise of radiant matter or radio-activity. Granted, then, that the radio-active element is under the direct control of the sub-con-

scious will, and that this element is possessed of the extraordinary force above described, it would be easy to see that an object might not only be caused to move horizontally, but vertically, to any height within the degree of energy exercised. Manifestly, whether the sub-conscious will is an efficient agent in the achievement of such a performance will depend wholly on the quantitative capacity with which it is endued. That is, if it be true that through the action of the electro-magnetic energy that surrounds a human body the sub-conscious mind may cause the oscillation or levitation of a physical object, the extent to which it can accomplish such an act will depend on the degree of the energy it possesses.

Undoubtedly, in a normal state the human mind or conscious will is possessed of no such power. The conscious will may exercise its volition to the utmost extent, yet never would it be able to so vibrate the ether or atmosphere as to cause any object to move. That is because of the fact that in normal conditions the cell-substance is not sufficiently agitated—is not sufficiently aroused by an excitant or unusual energy, to accomplish such an extraordinary act. But, as already stated, under undue excitement, such as when under the influence of alcohol or caffeine, the muscular and mental force becomes extraordinary. Now, the mental excitant that exercises the vital centres during a condition of trance, or hypnotic control, or ecstatic exaltation, is far greater than that aroused by physical stimulants. Under such conditions a control over the

subtle substance of the brain cells is acquired, evidenced in telepathic activities, clairvoyant perceptions, etc., which is never within the normal control of the mind.

This extraordinary volitional energy and mental perspicacity are due to the agitation of the profounder depths of the vital cells and the resulting increased radio-active energy of the electric corpuscles that circulate around them. All this, the reader will recall, we have explained in previous pages of this work.

It is therefore manifest that the amount of extraordinary work which the sub-normal will can accomplish through the action of the radio-active substance of the brain cells will depend on the amount of such energy the cells may release in the process of their atomic dissolution. I cannot enter deeper into this problem at present than merely to say the source of the energy is infinite. That is, there is no limit whatever to the possibilities of the release of the intra-atomic energy that flows from the decomposition of atomic matter. An infinite amount of electricity can be acquired from a definite quantity if the latter is confined within a body and that body is in action. This would indicate that the action is itself the cause of the dissolution of the interior atoms, from which dissolution evolves the radio-active energy with its product of electricity.

The whole question, then, reverts to the problem of the degree to which the radio-active energy may be developed by any physical, chemical or vital action.

Now, as I have said already many times, chemical action, such chemical action as goes on within the human system during processes of assimilation, circulation of nervous fluids, explosion of nerve centres, etc., is a direct cause of the outflow of radio-activity and electrical energy. The amount of such energy released depends on the intensity and quantity of the chemical action. Already I have stated that the chemical action that occurs in high and extraordinary states of mental activity and psychic exaltation is capable of producing a far higher degree and quantity of radio-activity and electrical energy than what ensues from the mere assimilation of food and circulation of the life fluids.

Hence, as the possibility of radio-active energy is infinite, that is, as it may be infinitely evolved from the centre of the vital cells, the degree of such evolved energy depending wholly on the amount and intensity of chemical action generated, and, as such action is most intense under extraordinary states of mental exaltation and psychic activity, it follows that what a medium so exercised might accomplish will depend only on the degree to which the mental exaltation or psychic activity can be developed. Naturally, therefore, the constant achievement of these wonders, even by the same medium or agency, would not be possible, as it would depend on the mental state or the psychic energy by which such agent is exercised.

And likewise, as might be supposed, such accomplishments would be spasmodic and uncertain. Again, a natural deduction to be surmised would

be that when such activities are spontaneous and unexpected, they are more powerful or effective than when under control and the result of anticipation.

These are the precise conditions which always prevail in any display of genuine psychic phenomenalism, and therefore seem to come under the limitations of the law as thus far discovered.

Given, then, such a person, so exercised by extraordinary mental or psychic excitement, all the conditions would seem to be present to permit the exercise of the sub-conscious will in the manifestation of physical oscillations, levitation of heavy objects, etc. Apparently, then, the levitation of a heavy table seventy-eight inches from the floor would be possible under the law above explained without the necessity of imagining the intervention of extra-natural or ultra-human agencies.

Let me here digress for a moment to extend a suggestion to psychic researchers. In my judgment these labors will never become wholly satisfactory to scientific minds unless they can be more thoroughly removed from the realm of logical speculation and introduced into the physical laboratory. If there are any genuine mediums it must be possible to discover them with as great certainty as a new metal or element in nature.

There must be some way of detecting and holding their powers beyond any possible disputation. It occurs to this author then, that with the present advance of the physical sciences, especially the energetic sciences, and the delicate instruments which are now being constructed, that such a demonstration or

discovery should be possible. If that most subtle of all known substances, radiant matter, can be detected by laboratory agencies, howbeit it is beyond the measurement of the chemical balance, it would seem to me that the subtle influence that is supposed to control so-called mediums should likewise become susceptible to discernment by appropriate instruments or physical agencies. The workings of radio-active substance are detectable through the electrometer, the electroscope, etc., by which the delicate energy of the electric force which accompanies the dissolution of the atom can be discerned; by the bolometer the delicate vibrations of the ether, caused by an influence no greater than a burning flame, can be detected over five thousand feet away from the flame; by the galvanometer we can detect the most delicate state of electricity in the ether, and show that electric action exists in all forms of matter.

If, then, the mind exercises its will force on the subtle radiant corpuscles of the vital cells, and such energy eventuates in the atmosphere of electro-magnetic energy that environs a human being; and if such electric activity can be intensified by the action of the sub-conscious will, to the extent of producing the extraordinary phenomena said to be witnessed in seances, then it seems to me the way is open by proper mechanical instruments to detect the workings of this power and to trace it to its exact natural source. In short, here, it appears to me, is a wide and as yet wholly unoccupied field for investigation of so-called psychic powers, along the lines of scientific exactness, and yet thoroughly within the range

of possibility. Discoveries made under such conditions would be precise and accepted by the scientific world, and all useless speculation and logomachy would be avoided. If there are any millionaires who do not know what to do with their fortune; and who are sufficiently informed to believe that the unusual powers exist to which we have often reverted in these pages, here it would seem to the writer is an unusual opportunity to apply such fortune in a way that might bring much knowledge and no less comfort to the human race.

Already a slight approach has been made to the possibility above intimated by the instrument that detects the psychological workings of the conscience, enabling one to detect when one lies or tells the truth, and other instruments that are gradually invading the heretofore inviolable precincts of mental activity.

I conceive that the next step will be the invention of instruments that will be able to expose the workings of the sub-conscious mind under the exercise of intense volitional energy, and by the use of the photographic plate, as already Baraduc claims partly to have achieved, to expose the very motion of the thoughts. If, as I shall soon show, the physicist may within the laboratory seize on the photographic plate such workings of radiant matter around a material object as are wholly beyond the compass of human vision and beyond the detection of the chemical balance; if, indeed, he may artificially produce such radiant activity, invisible to the eye, on various objects and then detect their ex-

istence by photographing them, howbeit their continuity is but for a moment; then it would seem the genius of man is indeed capable of inventing an instrument which will seize these supposed arcane powers that generate psychic phenomena, and hold them up, so to speak, that he who runs may see.

One thing is certain: either such powers do not exist in man or in the universe; or, as sure as night follows day, the wizard who plods ceaselessly in his magical laboratory will sometime conquer and control them as he does the subtle substances which for ages so confused mankind and but, even in our own day, have been seized, analysed and exposed to the understanding of man.

The fourth phase in Lombroso's classification relates to movements of different objects very lightly touched by the hands or the body of the medium, which cannot be reconciled with the exceedingly weak pressure exerted by her. If the principle above enunciated is accepted, then this transaction can almost be accounted for by reference to the inner force on which we have been descanting. The radio-active element, we have learned, is directly amenable to the energy of the will, and especially of the energy of the sub-conscious will. Therefore the medium under trance would direct, by the exercise of the sub-consciousness, the vibrations of the radio-active element surrounding the body. Naturally the impulse of that energy could be increased or diminished as the sub-conscious will intended.

In the same manner the fifth and sixth phases could be accounted for. These relate to undula-

tions and inflations of curtains of the seance cabinet, without the possibility of being manipulated by the medium, or at least by her conscious, normal faculties, and the movements and inflations of the garments of the medium, etc. Once grant the control of the radio-active element that surrounds the human organism, and the electro-magnetic energy that it emits, and manifestly its possibilities are beyond calculation. All these movements would then be conceivable. It needs only to be demonstrated that these particles, or the subtle corpuscular substance which originates in the process of dissolution of the interior substance of the cells, is subject to the operation of the sub-conscious will, and all these supposed psychic or extra-natural phenomena are conceivable within the plane of natural activities. As already stated, Stephens and others seem to have shown that the inherent action of these electric particles is volitional, or the product of will energy; and, as we have frequently stated, the will energy of the sub-conscious mind is especially powerful in the activity of this subtle emanation.

CHAPTER XXXI

TENTATIVE SCIENTIFIC EXPLANATION OF PSYCHIC PHENOMENA

(Concluded)

It is not necessary to review in detail all of Lombroso's classifications in order to demonstrate what I believe may be the scientific principle underlying these so-called psychic phenomena, always, of course, with the provision that they are genuine, which at present is subject to much uncertainty. Let us, however, venture to study one or two of the most startling and seemingly inexplicable of the events which he avouches. He speaks of "independent levitations of a table; these take place when the medium is at a distance, as when she is lying down and firmly tied down inside of a cabinet. It seems as if invisible persons must be lifting the hangings with their hands," etc. Again: "Movements impressed on material bodies by hands voluntarily turned towards them, but at a distance"; "spontaneous displacements of different objects at various distances"; "functional movements of instruments at a distance," etc.; "spontaneous changes in the weight of a balance"; "changes in the weight of the body of the medium from five to ten kilograms," etc., etc.

All these phases apparently must come under one law, if there be such a law existing. It must not be forgotten that these manifestations are produced

when the medium is in a profound trance; that is, when deeply buried in the realm of the sub-conscious activities. The power of the sub-conscious will to affect material conditions, we have already seen, is far in excess of that of the conscious will. If it is true that dissociation of matter is constantly going on in all substances; if as the result of such dissociation of matter there occurs in all these substances a subtle emanation of a gaseous nature which dissolves into electric particles, which penetrate solid substances and perform all the wonders attributed to radio-activity; if also it is true that this state of dissociative matter exists within the vital cell centres of a human body, and that all the cells of the system are enswathed with this subtle, corpuscular emanation; again, if it be true, as shown by Stephens, that this subtle emanation is especially amenable to an indwelling will-energy, so that its activity seems to be the effect of the direct control of the cell-will, and, that finally the will that immediately controls and energises this subtle substance is that of the sub-conscious mind; then it would appear we have all the natural conditions that are necessary to create the phenomena we have above referred to.

We are but beginning to discover the possibilities of this strange substance, and it is not supposed we as yet understand even a fraction of what it is capable. If, therefore, we can with what knowledge we have at present conceive how it might act so as to achieve these phenomena, we may be encouraged to believe that with a little more knowledge we shall

be able to demonstrate the complete naturalisation of these so-called supernatural, or at least extra-natural, phenomena.

It may be at considerable risk to proceed with this attempt at analytical explanation of manifestations which seem to defy all known law, yet I shall here attempt what some may believe to be the impossible. For instance, take the supposition that, as Lombroso and others assert, they see an actual hand created in the air, and that hand performing certain acts. I am here ignoring the theory of telepathy and hallucination, to which I shall later revert, and am undertaking to learn whether if this phenomenon actually occurred it could be explained by what we even now know about the radio-active energy in nature.

Assuming, then, that the brain cells are enswathed by the corpuscular emanation we have previously described; that this substance constitutes the formative basis of thought, intelligence and will-energy, that is, that these mental forces utilise it as their direct instrumentality, may we not trace the evolution of the phenomenon under consideration, thus: Thought is physically embodied in a series of etheric waves; the impingement of these waves on the brain cells generates consciousness (primary or secondary) in the individual; the vibrations emanating from the brain cells penetrate the universal ether in a fixed congeries or form; in the instance under consideration the thought purposely generates in the mind the idea or image of a hand; the sub-conscious will projects that mental hand

into the ether in a series of waves composed of the emanation from the brain cells; this emanation is radio-active. Now one of the properties of radio-active substances is that, like a magnet, it gathers the particles of the air around it, by a process known as induced radio-activity. The mental-hand, then, projected into the ether would act upon the particles of the air like a magnet on particles of steel filings. Just as the latter gather round a magnet following its form, so the particles of air would gather round the radio-active form of the hand shaped by the ether waves, and, thus condensed, would become visible to the human eye.*

It occurs to me also that the recently discovered properties of radio-active substances may explain the phenomenon known as "levitation" in all its phases, even including that of the alleged levitation of the person of the medium. We recall the case attested by Crookes and others of D. D. Home flying out of, and back again through, a window. Naturally such a phenomenon strains our credulity; yet assuming its reality, can it be scientifically explained? Let us see.

It is now known that one of the remarkable properties of radio-active substance is that it makes the air a conductor of electricity. That is, such an emanation causes a leakage of electricity within the body which generates it. Does the condition of a human being ever become such that the radiation from his body might so neutralise the effect of grav-

*As to the quality of induced radio-activity, see LeBon: "Evolution of Matter," pp. 145, 146.

itation by electrifying the air that he might maintain his balance in the atmosphere without material support, and therefore sail through the air? Of course what I am about to propose or rather suggest is at present pure speculation, but it rests so much on scientific possibility as, I think, to call for respectful consideration. It can and has been shown that this very condition can be instituted in inert matter. That is, a piece of metal, such as gold leaf or aluminum has been caused to stay suspended in the air without any material support, the only means used being the electricity generated within the body itself. This would formerly be regarded as one of the most wonderful of miracles, casting as much confusion on the minds of people as Mohammed's supposed suspended coffin caused in the minds of his votaries. Yet this phenomenon is now a scientific certainty and may be proved in any electrical laboratory or by private means.

What does this fact indicate? Simply this. That if within a piece of metal such a force can be brought to play as will so disturb its atoms as to cause their dissociation, thus releasing the intra-atomic energy, then merely because of this released form of energy the piece of metal will be held mid-air in a rigid state, as if it were pulled tight by attached springs.*

Now, again recalling that when a human being is in a state of profound trance, or in deep hypnotic sleep, the chemical reactions which ensue generate

*See "Evolution of Forces," pp. 115 to 118.

the condition of radio-activity, namely the release of the intra-atomic energy, it is, of course conceivable that a so-called medium might at times attain such a favorable environment as to cause a sufficient release of such energy to neutralise the force of gravitation and remain suspended in mid air.

If the phenomenon be possible, and if it is brought about by such natural means, then it would seem by subjecting the "medium" to scientific examination the proof would speedily be found. For a body so affected is amenable to the electroscope and would soon show whether it is the increased flow of the electrical particles that causes his suspension as the suspension of the metal is caused.

That we may appreciate how delicate are the forces that play around all bodies, including the human body, let me here refer to a recent discovery of a new force, which, while not yet officially recognised by Science, is nevertheless demanding its attention. I refer to the so-called N ray first detected by M. Blondlot. He observed that certain substances when approaching a light or a luminescent object had the effect of increasing its brilliance. After much experimenting he was forced to conclude that its source was not the X ray, or any of the other known radio-active energies. He found it to be a distinct ray, discoverable even in the radiations of the sun.

Afterwards, by a mere accident, M. Charpentier discovered that these same N rays are also emitted by the human body and are not to be confused with the now recognised radio-active radiations, although

possibly caused by the same dissociation or degradation of matter.

One remarkable property of the N ray, which M. Charpentier discerned, when emitted from the human system, was its correlation with muscular action or nervous discharge. "He found that the increase of the brightness was most considerable in the vicinity of a muscle, and was greatest when the muscle was considerably contracted. Nerves and nervous centres were afterwards found to produce similar effects, and he was even able to follow in this manner the course of certain nerves beneath the skin." He claimed that he could by this means trace out the regions of the brain which are active in special functions, such as the "centre of Broca," that physiologists have come to regard as the special organ of speech.*

This alleged discovery is certainly deserving of further research, as we are thereby beginning to discern something of the subtle correlation of muscle, nerve and brain action, with a most recondite substance or emanation, so highly susceptible to the most delicate of motions as to be utterly beyond calculation. For as yet no instrument exists that can detect the vibrations of this element, and they can be discerned only by means of the effects which they produce on certain other substances or radiations.

Because of the extreme delicacy of these effects the large majority of scientists have refused to

* "The N. Rays of M. Blondlot." C. G. Abbott, *Smithsonian Rep.*, 1903.

credit M. Blondlot with his discovery. Nevertheless the fact that photographic effects can be produced by the intervention of the N rays would seem to verify their existence.

The fact, to which I desire here to call especial attention, is the alleged discovery of M. Charpentier that these rays are instantly affected by the contraction of the muscles of the body or the tension of the nerves.

This fact would seem to let some light into the alleged phenomenon that so-called "mediums" cause the illumination of objects by their presence or approach; and it would seem even better to explain the alleged incident of the inflation of curtains and the moving of articles by the contraction of the muscles.*

It is becoming manifest that there is an infinite variety of radiations of higher and higher frequency with which the ether is replete, and that by some law yet undiscovered there is a method of intercommunication or interaction between them. By the recent discoveries in this field of subtle radiations we have already acquired sufficient understanding to give us the hint that we need discover but little more about them to apprehend how by merely contracting the muscles, tensing the nerves, or by agitating the brain cells in thought or mental speech, curious effects in the phenomenal world may be produced.

Materialisation might be accounted for in still another way under natural law. The air, as is now

*See "Metaphysical Phenomena," by Maxwell, p. 272.

known, is slightly radio-active. One of the laws of radio-activity is that it can be induced from one object into another. If then a highly charged radio-active substance be introduced in the air, it would have the tendency of charging, similarly to a load-stone, the particles of air in its vicinity. These newly charged particles, by the law of induction, would increase the charge of their immediate neighbors, thus aggregating a sphere of radio-active substance, more highly charged than the surrounding air.

A so-called medium, possessing possibly more radio-active energy than his immediate neighbors, could induce in them an increased radio-active charge which would communicate itself to the rest of the circle, thus organising a radio-active atmosphere with the medium as its nucleus. We have been studying the fact that such corpuscular aggregations are the direct instrument of the conscious and the sub-conscious wills. Affected, then, by any volitional act of the medium, the aggregated corpuscles might take such shape as he might determine, might respond to his nerve tensions or muscle contractions, as we have above observed, might on approaching human bodies become illumined by a phosphorescent glow, being affected by the N ray, and perform the various other physical phenomena attributed to mediums, and yet all be done under strictly natural law in the physical world.

Because at present we are comparatively so little acquainted with the full possibilities of the forces we are studying we cannot more than guess or con-

jecture how they may be involved in the manifestation of psychic exhibitions. But the very fact that with so little as we at present know of them we can see how they may be involved in the operations which have thus far so much confused the world, affords courage that in a short time we shall have learned enough about them to lift with their assistance the veil of mystery that so heavily bedecks the occult phases of human experience.

It may be, too, that our knowledge of these forces will increase quite as rapidly as our acquaintance with what there may be genuine in the so-called psychic phenomena. For it must not be forgotten that at present because of the vast superimposition of fraudulent efforts on what there may be genuine in such phenomena, none can yet say what small moiety will ultimately remain as indisputable. Perhaps by the time this quantum of actually genuine manifestations shall have been safely segregated from the rest we shall also have learned so much about the marvellous natural forces we are contemplating as easily to explain them all under natural and observable law.

For we are dealing with the most subtle, recondite and delicate of all natural forces ever yet contemplated by the human intellect. It is but a few generations, or at best but a few centuries, ago, that men supposed the finest forces in nature were earth, air, fire and water. How slowly have we been able to ascend from a knowledge of these dull and comparatively inert elements to those of heat, light, chemical affinity, electricity, sound, etc., and from

these to etheric vibrations, radio-activity, corpuscular emanation and the like. And the most marvellous of all the facts we are to learn is that the altogether most powerful of the forces in Nature are the most subtle and least discernible. This is a law we must always hold in mind when we are studying such subjects as occupy the purpose of this essay. We used to think that mechanical pressure was the most powerful of natural forces. We therefore esteemed it marvellous that no pressure was sufficiently strong to compress water. All the pressure of the universe could not contract it. Yet the subtle variations of temperature, a slight rising or falling of the thermometer, does the work. The variable action of heat, a force that can be only felt and never seen, reduces the water from vapor into ice and again dissipates it from ice into vapor.

In the same manner no mechanical power however strong can separate the chemical atoms of any substance. Yet when submitted to the subtle charge of an electrical current, a force whose motions can never be discerned but always only witnessed in their effects, the atoms of the solidest substances can be torn apart.

But so profound and ultra-subtle is the force which Nature utilises in the disruption of the atom itself (a far more stupendous achievement than the mere displacement of the atomic-aggregation of a molecule of chemical matter), that through all the ages of human research man had not detected it till almost by accident it fell to the fortune of the savants of our own day to be its discoverers. Yet,

strange to say, the causes that effect this wonderful result are not the mighty hammer of Thor or Vulcan's blazing forge, but so common a thing as a ray of light, whose power had never before been even suspected.

And this is true because, as I have previously asserted, Nature, reduced to her last analysis, is but a congeries of vibrations or an aggregate of motions; and not the heaviest or widest but the subtlest motions, those that, undetected, can intercept and penetrate other motions, these are at once the most mysterious and effective in the universe.

Before we attempt to understand the alleged "materialisations" of the psychic seance we should first seek to comprehend the far more startling materialisations which nature achieves in her universal laboratory. And, as if by poetic justice or irony, as you choose, by comprehending her natural materialisations, we may be led to an understanding of the possibilities of so-called psychic phenomenalism. One need but read the fifth chapter of Le Bon's "Evolution of Matter" to catch the method of Nature's trick and learn, that with but a little more of this secret detected, science will probably soon be able to explain every phase of psychic materialisations, if indeed they ever occur.

For by merely employing an electric needle attached to a specific instrument he has been able to organise and detect the marvellous and almost magical arrangement of the corpuscles which he conjures from various substances. We have repeatedly referred to these corpuscular elements around every

object which constitutes the basis of their radio-activity. It is the radio-active property of the corpuscles that enables them to produce a photographic print. Thanks to this possibility, the startling materialisations which are effected in the laboratory can be detected. For the work accomplished is with an element naturally invisible, and actually immaterial, that deigns to reveal its workings only through the medium of a photographic camera.

Armed with such a camera and with the electrical instrument just mentioned the physicist has been able to sport with Nature and force her to reveal her mysterious possibilities before his wondering eyes. For, the subtle particles of the radio-active element were played with by the ingenious electrician and physicists, as recited in Le Bon's book, till he compelled them to organise themselves in all conceivable protean shapes,—into scintillant, revolving stars; outstretched rays, like hands, mutually embraced; spider-web-like filaments, that mutually flared and danced and bowed to each other like magic spectres; shapes, looking like bales of cotton, with dark lines, like heavy cord, athwart their rounded forms; rows of brilliant circles, that look like finger-tip prints, arranged in parallels on a black surface; curious conformations that look like symbols of ancient religious cults, such as a dark circle from whose circumference shoot a circling array of electric gleams, like fiery serpents, within which another circle forms, giving room between the two circles for a concentric bed of corruscating figures, while within the smaller circle itself flares

forth a solid sphere of phosphorescent glory, crowned with shooting forks of lightning.

Many more which I have not room here to describe were conjured by this magician-physicist amusing himself with the sportive conquest of Nature's deep-laid secrets. Yet they are unstable forms, and can be held but for an instant. "If we were able to isolate and fix them for good," says this author, "that is to say, so that they would survive their generating cause—we should have succeeded in creating with *immaterial* particles *something singularly resembling matter*." Yet while he could not maintain the invisible form of matter he had so magically produced, he at least could hold the spectral semblance of material substance long enough to immortalise it on the photographic plate.

Seeing what amazing effects can be detected in the mechanical laboratory in the workings of these magical particles—the corpuscles of radio-active substance,— need we be surprised if Nature also utilises them in the manifestation of many phenomena which are dependent on mental no less than material manipulation.

If these corpuscles are directly subject to volitional control, or if their activity is itself a form of volitional energy, as we have already indicated, and if, again, this form of activity is especially amenable to the will of the sub-conscious mind, as also, we have seen, has been discovered, then it would appear to be a natural consequence that this element is employed in the mental activities of human beings. If these elements can be so played with in

the possibilities of the mechanical laboratory by the imposition of a controlling intelligence, why is it not possible that they may be compelled to perform certain mysterious tricks when under the immediate control of a sub-conscious mind, to whose operation they seem to be especially amenable.

If the intimations above presented are trustworthy, and if the radio-active particles are indeed the available instrumentalities of mental control, then we may detect the way to a natural and logical understanding of the *modus operandi* of psychic phenomena, without looking beyond the sphere of activities now operating in the organism of a human being this side the grave.

Of the extraordinary control of this corpuscular element within the human system by the sub-conscious mind or will, I have already spoken, but I think it necessary that this should be insistently emphasised. It occurs to the author that if this principle is carefully discerned much that is now confusing in human experience, no less than in animal life generally, may be better understood.

That the sub-conscious may act independently of the conscious mind, we know; that it energises all the involuntary functions of the human system, we know; that any function of the system, originally determined by the conscious will may, by habitual repetition, descend from the control of the conscious to the sub-conscious mind, we know. In short the sub-conscious functions and faculties are the most constant, powerful and essential of any of the functions of life. If we had not the instrumen-

talities of the sub-conscious mind, on whose psychical activities the whole rationale of our being depends, we should find growth, development, intelligence, education and progress utterly impossible. All this we know by the analysis of our mental faculties and psychological processes.

But one thing perhaps we have overlooked; that is, that the direct instrumentality of the sub-conscious will is not so much the nervous system, especially the sympathetic, as it is the extraordinary ultra-material or corpuscular enswathement of this system.

Here we find a recently discovered agency composed of a substance which is the embodiment of, potentially, the most powerful force in the universe, and which may assist us in solving many problems of life. I have several times already referred to the exceptional energy which a living organism comes occasionally to possess, altogether out of proportion to the energy which its food supply could generate. This has been one of the great physiological puzzles. It has been a fruitful source for the intervention of supernatural theories relating to human life, and the introduction of many superstitions. There are occasions when a slight, diminutive, physically weak individual achieves a labor far beyond the possibility of his normal energy. It is always done under the stress of great excitement, at the conjuring of some unexpected crisis. Something takes place inside that for the moment revolutionises his physical system and enables it to rise superior to its ordinary limitations. Or, it

comes as the consequence of deep introspection or rapt, abstract contemplation.

What happens?

Men have been known under strain of great necessity to live for many days on a diurnal ration that would not ordinarily sustain an infant. Socrates stood, it is said, for twenty-four hours fixed to a spot, rigid, without moving. Little birds live on a single grain of food throughout an entire day and travel hundreds of miles on the slender supply.* What force sustains birds in their vast flights, poisoning often for long periods without moving a muscle? What starts a dog on its sudden swift race after a moving vehicle, when he flies with fifty times his normal gait?

That this force, whatever it is, is especially guided by the sub-conscious will or mind, is evidenced by many abnormal characteristics in human beings. Persons have been known to survive in pathological conditions long intervals when the patient absorbed either no food at all or very inappreciable quantities. There is, for instance, the famous case of Marie B., at Bourdeilles, who is said to have lived for eight years with no other nourishment save that derived from rinsing her mouth with plain water, and who finally died in that condition.

It seems now to be an intimation of science that

*"A pigeon with but two ounces of seed food in its crop expends energy in flights of hundreds or thousands of miles, and in maintaining its body-heat, vastly in excess of the oxidation of twenty times that amount of food. . . . The chickadee . . . generates in its tiny body an amount of heat, during the long winter nights, impossible to account for from the few grains of moss spores which it ingests." (Stephens' "Natural Salvation," p. 139.)

the force which the mind, especially the sub-conscious mind, employs in these feats of extraordinary energy, is the volitional function which apparently inheres in the corpuscular particles of the nervous and cerebral systems. It is this energy to which I am inclined to think will ultimately be referred the source of ultra psychic phenomena which some have perhaps too hastily accepted as proof of a personal survival after death.*

I have thus far attempted tentatively, and I fear all too bunglingly, to indicate how we shall possibly be able in a few years to discover the existing force in Nature that will afford an intelligent analysis and explanation of the *modus operandi* of super-normal phenomena, without recourse to supposed spirits or excarnate beings.

If we find it possible to conceive of a logical explanation of material phenomena, founded on physical principles, which are altogether the more confounding to our traditional intelligence, then it seems to me an apprehension of the natural laws, by which the purely mental or metaphysical phases of psychic phenomena are determined, should be as easily discerned.

*"Intra-atomic energies are a source of many possible varieties of energy. M. Georges Delbruck, an engineer, has suggested that the larger birds, whose soaring flight without apparent motion is so difficult to explain, may have the faculty of generating at the expense of intra-atomic energy a force capable of striving against gravitation until it renders it null." ("Evolution of Force," p. 351.

Couple with this suggestion the discovery claimed by Stephens, that this intra-atomic energy is susceptible to the control of will, or is itself an exercise of volitional energy, and we seem to have a principle that, as I have above attempted to explain, may easily constitute the physical source of psychic phenomena.

CHAPTER XXXII

THOUGHT AND RADIO-ACTIVITY

The purely mental supernormal phenomena are far more easily explained by referring them to the already apprehended physical forces in nature than those we have been thus far studying. For even long before the radio-active emanation was conceived of, physicists had already satisfied themselves that the ether was, as we might say, stratified into a myriad of invisible planes of vibration, each plane consisting of shorter and swifter waves than the preceding, till they became so short and so swift they were not only invisible, imponderable and incalculable, but quite beyond human conception.

It is within the bounds of reason to surmise that, if such layers of etheric vibration surround each visible object in nature, shading off from the denser to the ultra refined according to their nearness or distance from the object, then all objects touch each other more or less at a distance as well as when in immediate contact. For now we know that every atom is but a well wrapped bundle of electric corpuscles, the density of the atom depending on the number, and the rate of rotation of the corpuscles around the atom's axis, and that the vibrations set up by the rotation of the corpuscles stir the ether immediately surrounding into a series of departing vibrations. So that every visible and invisible object in the universe is constructed merely by the

meeting, merging, repelling and assembling of these myriad vibrations of the ether.

We have already observed that a thought and a function of the will are modes of motion. That is, to think and to will is to vibrate some material substance within the brain, however refined and subtle such substance may be. The vibrations of such thinking and willing stir the surrounding ether with ever receding ripples of most delicate motion, passing on forever into the spacial void.

Now, all waves of ether merge or repel each other according to their polarities. They are absolutely distinguished by their length and rate of speed. A wave that generates light in the ether is not a sound wave or an electric wave. Yet the only difference consists in length and rate of motion. Any material instrument will be affected by the varying waves of the ether according to its susceptibility. If it is so adjusted that some wave of especial length and rate will respond it will prove it by a motion of some sort. The radiophone, the electric key, the phonograph, the telephone, the wireless receiver, the photophone are all demonstrations of this law. The one sets up mechanical motion by a ray of light; the next receives intelligence through a metallic key moved by an electric wave; the next produces speech by an instrument that is moved by and records the sound of the voice; the next reproduces the sound of the voice direct through an instrument that responds to it; and the last, the photophone, actually produces speech by means of a ray of light.

But the human brain is an instrument as intricate as any ever invented by man, and even more susceptible to ether-vibrations than any of metallic construction. It is indeed the most sensitive of all instruments with which we are acquainted, and it is governed by the same natural laws.

If, then, specific waves affect certain instruments which are so constructed they respond synchronously, why is it not perfectly logical to recognise, in the brain, an instrument of such a character?

Here we may discern a physical law that logically explains the transmission of thought from one brain to another.

But the problem arises, Why, if this is a universal possibility, are so few affected by such transference of thought? The palpable answer is, of course, that such transference is chiefly unconscious, or operated through the functions of the sub-conscious mind. Doubtless we are affected thousands of times by other minds without in the least suspecting it. It is only when such an affection occurs in a startling manner, that we are awakened to a realisation of its marvellousness. However, there are cases on record which seem to prove that certain persons are so naturally constructed that their minds are extraordinarily responsive to the thoughts in other minds. They seem to read the thoughts of others as if they were written in an open book. When in the days of past ignorance such possibilities were revealed it boded suffering and ill fate to those thus empowered. It was this unfortunate faculty that undoubtedly led to

the persecutions of the days of witchcraft, and if in our supposed superior wisdom we laugh at such occurrences, we must either conclude that at one period of history all human beings became suddenly insane or admit that what the supposed witches were accused of was true. The fault was not in the fact; but merely in the then ignorant interpretation of the fact.

It is impossible here for want of space to recite the celebrated historical cases of clairvoyance, such as those enumerated by Morin, Ochorowicz and others, though temptingly interesting. There was that parish priest of Ars, who died in the early seventies of the 19th century, who it was said saw with infallible precision the thoughts of those who came to consult him, disconcerted all skeptics by revealing their own mind, and terrified penitents who feared to confess to him because of his acknowledged power. There were the Ursuline Nuns, universally dreaded because they were said to be able to reveal the most secret thoughts. There was the case of Sister Claire, an ignorant nun, who answered visitors in the very language of their nation, although she knew but her own. She spoke to them, according to their sworn testimony, in Greek, German, Turkish, Spanish, Italian, etc.

These cases might of course be somewhat questioned if it were not now known that clairvoyance may be induced and wondrous results follow. Among the many cases now known take this one recited by Puysegur, in the early part of the 19th century. He found a peculiarly susceptible sub-

ject, who, when in a magnetic state was wholly transformed. He was natively almost an idiot, yet when under control performed mental wonders. "I have then," says Puysegur, "no need to speak to him; I think forment him, and he understands me, answers me. When any one enters his chamber, he sees him *if I will it*. Talks to him, tells him the things *I will that he tell him*, not always as I dictate to him, but as truth requires."

These cases are similar to those declared by Dr. Dodds to be common with him, to which I have previously referred. In short, there seems to be a state of mind, which is peculiar to certain persons and only under certain conditions, wholly diverse to the normal mental condition. It does not then seem to require the ordinary instrument of the brain or the natural senses to discern what it may, but seems to utilise an agency utterly unamenable to the common mind of man.

Have we any way of discovering what this agency is?

All thoughts and mental actions, we know, are indelibly impressed on the living substance of the brain. There they remain so long as the brain exists, susceptible to recall at any time. But the mass of such impressions, which have wholly passed beyond the normal consciousness, has sunk into the profound depths of the vital matter and becomes the physical bed of the sub-conscious activities. Under certain circumstances this profounder depth can be stirred into activity when the forgotten experiences rise again into consciousness. They have

not returned from elsewhere to the mind, they have simply risen again from its buried depths. Now, we have seen that whenever the plasmic depths of the cells are aroused, they discharge a semi-material emanation, namely the corpuscular accompaniment of nervous or cerebral activity. This corpuscular emanation, as we have learned, is impelled by an inherent will-energy determining its actions. It circulates throughout the system, especially within the brain centres, directly subject to the demands of the sub-conscious mind. Why then is not this the volatile medium that carries in its substance the mental impressions of the normal and subnormal faculties, which, capable of passing through the walls of the flesh because of its radio-active properties, may pass from mind to mind, conveying such impressions as the volitions of the sub-conscious control may determine?

We have already called attention to the fact that these corpuscles or emanations take distinctive forms, when impressed by material forces, and that they can be retained long enough to seize their impression on the photographic plate. Hence the substance, howbeit volatile, imponderable and invisible, is subject to compression, and can be shaped into distinctive forms, and these forms maintained for a limited period.

As this substance is also susceptible to mental impression, or the cellular motion that occurs in a mental process, it of course would assume such a compression or shape as determined by the mode of the mental motion.

This mental form, composed of radio-active substance, invisible, imponderable, yet susceptible to the photographic camera, resides within the brain at the cellular centres whose activities cause its emission.

Yet a thought possessing radio-activity, means that it may penetrate the walls of the opaque skull and enter again behind the skull that holds another brain and there compel such synchronous association of the brain cells as would induce in the consciousness of the second brain the form of thought transferred from the first brain.

All this seems to be strictly within the bounds of discovered scientific laws, and therefore in no way supernatural or for that manner supernormal.

The fact, also, that the shapes of the corpuscular emanations may be seized in the mechanical laboratory, as I have already recited in previous illustrations, demonstrates the scientific possibility of the photographic reproduction of these mental forms which I have been discussing.

If it is true that corpuscular emanation always takes place in the dissociation of matter, and if protoplasm is matter in a state of atomic decomposition or dissociation, then all protoplasmic or living matter is constantly emitting corpuscular emanations or radio-active particles. It is shown by Le Bon that such radio-active particles assume distinctive shapes around the substance from which they emanate, and that such forms vary in appearance with the objects from which they proceed; and it is further shown by Le Bon that such diver-

sified shapes can be seized permanently on the sensitive plate of the photographic camera.

Thus it seems to be but a natural scientific deduction that the forms of thought which impress themselves on the corpuscular emanations emitted by the living substance in the cells of the brain, are also amenable to the photographic plate. Hence "spirit" pictures should not surprise us, either when caught unexpectedly in the camera or when designedly seized by the photographer.

This demonstration may also afford us an understanding of the possibility of photographing thoughts directly as Baraduc, of Paris, is said to have discovered by accident. He claims that by conducting a clear image of his mind toward a sensitised plate which he touches with his hand while developing, he can cause the photographic reproduction of the mental image. The sharpness of the photograph depends, he informs us, on the clearness and completeness of the mental image. If his discovery is fully verified, then we have a clear proof that thought is a substantial form and in its transference there is more than merely a mental process involved.

CHAPTER XXXIII

PHYSICAL BASIS OF TELEPATHY

Since the S. P. R. invented the term telepathy it has passed as a sort of talisman among students to ward off the fear of tumbling into occult jargon and absurdity. Most people seem to think that if a fact in Nature or human experience be merely named, the christening itself is an explanation of the phenomenon. Hence many, even scientific men, seem to be satisfied with the mere statement that all the phases of psychic phenomena can be scientifically explained and understood by merely referring them to a process of the mind called "telepathy." One cannot but be amazed, on reading a review of what the S. P. R. discovered in experimenting with susceptible subjects, at the exactness of the reproduction of projected thoughts and images, on the minds of recipients; at the explicit mental correspondence maintained between two distant persons; at the projection of spectral forms, palpable as the living persons, upon the vision of unanticipating recipients; at instantaneous mental despatches and replies, all achieved with the seeming simplicity of normal transactions.

In former times these phenomena were regarded as supernatural, and therefore inexplicable. Since modern science has studied them it has been determined that they are in no sense supernatural, but can be comprehended by the scientific mind and

analysed as thoroughly as a mineral specimen in a chemical laboratory. But the presumption seemed to be, that by merely stating they had found a "principle" in Nature which they called "telepathy," the scientists had thus analysed, explained and logically classified these phenomena. To my mind they have done nothing of the kind.

To name a phenomenon by inventing a Greek combination, after the manner of scientific nomenclature, is far from explaining it. Suppose when it was discovered that messages could be carried through the air we had merely named the results "telegraphy" and had gone no further in understanding or explaining them. Would science have been satisfied?

Supposing when by mere accident it was learned that a message could be conveyed through the air without wires, it had been merely named "wireless" and science had paused there. Would that have been an explanation?

Palpably not. Science must deal with things and not merely with theories, with substance and not with supposition. To know what telegraphy is she must first know more about electricity than she had before; to know what wireless is she must first become cognisant of Hertz waves, and the invisible media involved in the wireless transference of physical messages.

Thus it is with regard to so-called telepathy. To stand still after merely christening it "mental transference," and think it has been explained, seems absurd. We have learned what medium in Na-

ture permits the transference of telegraphic messages; so we must learn the substantial, material or ultra-material element in nature that suffers itself to be utilised in the transference of mental thoughts and images. Without such an explanation the christening of the phenomenon has but little scientific value.

I cannot, however, agree with Professor Hyslop's strictures on the theory of telepathy as set forth in the "Journal of Psychic Research."*

If it be true as he suggests that mere vibrations induced in the brain by telepathic force are insufficient to account for the awakening of requisite intelligence in the receiving brain, then the objection does not lie so much against the theory of telepathy as against that of the relation of thought to the

*"Mr. Podmore quotes Sir William Crookes as suggesting the possibility that there may be 'a telepathic chain of brain waves along which the message of thought' may be transmitted. But even granting this fact there is no essential resemblance between that process and the use of undulations of the air in normal perception, as the latter are associated with merely conventional symbols in order to 'communicate' our ideas. The vibrations do not carry the thought in normal 'communication' and the imagined method. The chasm is not in the least bridged between the 'natural' intercourse and the 'supernatural' one of telepathy!" Just preceding the above we find the following paragraph in Dr. Hyslop's article: "You may assume all the resemblance you please, superficial or otherwise, between the particles in the 'coherer' of wireless telegraphic instrument and the brain of man, it does not affect the issue. The question is, whether the communication by telepathy involves the essential agreement between agent and recipient as to the *symbols* to be employed in the transmission, and until this agreement and symbolic characteristic is there, no essential agreement exists between telepathy and ordinary intercourse." ("Journal of the American Society for Psychical Research," Feb., 1909.)

cortical activity of the brain. Prof. Hyslop insists that there must be a previous understanding as to the symbolic code between minds before they can comprehend the meaning of the vibratory intercommunications. But each mind reads its own symbolic code. That is, what we call the mind interprets certain cellular vibrations in the sensorium as having distinctive meanings which have been instinct in the race from time immemorial. The infinite commutations and permutations of the cell bodies in the brain have been gradually organised since the beginning of human intelligence.

To generate an identical notion or thought in the mind of a Pueblo Indian and that of a Tolstoi Nature demands the aggregation of precisely the same cells in parallel regions of their two brains. If the Indian thinks "red," the cellular process in his brain is no more and no less complicated than it is in that of Tolstoi. And if the Indian could be so educated that he could read and understand a page of Shakespeare as well as Tolstoi, Nature would use in his brain precisely the same cells and in the same cortical region, as she uses in the brain of Tolstoi. In short, the intelligence of mankind has agreed, from time immemorial, on certain cellular combinations or cerebral symbols to convey certain notions or ideas to the mind. Once these cellular combinations or cerebral vibrations are set in motion the mind instantly discerns in their presence certain meanings which are universal. Hence telepathy as a theory is not scientifically objectionable or illogical, on the ground set forth by Prof. Hyslop.

His strictures might apply if telepathy were being exercised on a race of wholly foreign people, such, say, as the denizens of Mars, who presumably had established a wholly different code of symbols for the thoughts they convey. In that case we might, indeed, well wonder how if the brain of a Martian were impinged by a cerebral vibration emitted from the brain of an Earthian, the Martian could come to understand what the Earthian's vibrations meant. It would be much as if two persons of foreign nationalities, neither understanding the language of the other, undertook to communicate intelligently through their native tongues. It would be manifestly impossible.

But this objection does not apply between foreigners who are interpreting the cerebral vibrations. For, the mind interprets not the labial motions, not the syllabic configurations, but the cerebral vibrations which precede them. The brain fortunately has no foreign languages; within the sphere of the cortical cells there is room for all languages, it is true; and each specific language has its own particular locality in the cerebrum. But while that is true of languages, it is not true of ideas or states of consciousness. For instance, the German says *roth*, the Frenchman says *rouge*, the Italian says *rosso*, and the Englishman says *red*. Now in each brain there is a specific centre where the exact cellular symbol for red is recorded. But there is also a centre where the linguistic form is recorded. The combination of cells that stands for the linguistic *symbol* is different from the combination that

stands for the linguistic *form*. But the linguistic symbol is identical in the brains of all nationalities; it is only the linguistic form which differs. Thus, if the notion "red" can be awakened in the minds of people, who understand only different languages, as for instance by a picture, or an illustration, then the notion red causes in all their brains precisely the same cellular relations; but when each thinks in his own language of the notion thus awakened, each, then, discerns a different cellular combination.

This has been proven by the destruction of or injury to certain cell-centres and the consequent loss of certain mental functions that depended on specific cellular associations. When the cellular relation was restored then the corresponding function was reinstated.

If, for instance, a person speaking only English, suffered injury to that part of his brain where the English word red would create the notion red, and afterwards he learned a different language, he could then acquire the same notion by being informed of the correct symbol in the acquired language. But the cellular vibration that would symbolise red to him as a notion would be precisely the same as that which had been generated by the other language. In short, if I may so put it, cell-language differs among people of different languages. But cell-notions are identical among all people whatever their language may be.

This law illustrates the fact that the subliminal mind is acquainted with all languages, for all languages awaken the same notions which, however,

are expressed in different linguistic forms. A so-called medium, therefore, operating during trance only through the cerebellar brain, or the subliminal mind, might both receive and communicate in a language with which the cerebral brain or normal mind was wholly unacquainted. For the cerebellar brain, the instrument of the subliminal mind, receives like plastic wax all impressions made on it by the cerebral brain or normal mind, in the same or another personality. On this latter point let me quote Dr. Alexander Wilder:—

“The cerebrum, as the organ of thought and will, is the director of activity. The cerebellum, corresponding to it, does unconsciously whatever the cerebrum performs rationally. It follows the states which the cerebrum induces on the organism, and holds the impressions which have thus been made. In sleep the cerebrum lets go its hold. Impression, sense and understanding are, for the time being, suspended. Similar conditions often exist, to a degree, in our waking hours. We can perceive at once that if the cerebrum alone upheld our vital energies we should die when sleep intervened. . . . But the cerebellum is an organism that neither slumbers nor sleeps till it yields up life. It is always active. . . . We are thinking and reasoning unconsciously all the time.”

Manifestly, the cerebellar brain is the vegetative, protoplasmic, instinctive organ. It receives and gives forth whatever is impressed upon it and may be conceived of as the phonographic cylinder of the cranial organism. Therefore every cellular impression it receives it instinctively interprets ac-

ording to the subliminal understanding of the universal symbols. This mind knows all languages, for it understands the notions which the languages mean to convey, discerning their identity in the minds of persons who speak with different tongues.

Nevertheless, as Dr. Wallace has logically contended, telepathy as heretofore apprehended, cannot explain a distinctive class of phenomena, such for instance as relate to the discernment of apparitions by animals, of which there are numerous authenticated incidents on record. I will recall a few of these to the reader's mind, and ask him if merely naming them "telepathic events" in any way explains them.

Here, for instance, is a case which was told to Dr. Hodgson, who described it some years ago in "The Arena." The informant told him that an apparition of a white lady appeared to his brother. "The third night he saw the dog crouch and stare and then act as if he was being driven around the room. Brother saw nothing, but heard a sort of rustle, and the poor dog howled and tried to hide, and never again would go into that room."

There is the case reported by S. P. R. at Hammersmith, London, where disturbances in a haunted house continued for five years and when a phantom woman was seen, "the dog whined incessantly," and when called to go into the room with his master, crouched down, tail between his legs, and was afraid to enter.

A remarkable case is said to have occurred in the cemetery of Ahrensburg, of which R. D. Owen

speaks, in his "Footfalls": "The horses of the country people visiting the cemetery were often so alarmed and excited that they became covered with sweat and foam. Sometime they threw themselves on the ground, where they struggled in apparent agony and, notwithstanding the immediate resort to remedial measures, several died within a day or two." The case was officially investigated and after thorough search no normal cause for the disturbance could be found.

There are a number of such well authenticated cases on record, and there has never been a rational explanation of them. The theory that they are hallucinations imposed from human minds on the animals, seems rather far fetched, especially as we have no record, with which I am acquainted, of such an experiment having been successfully tried on animals.

Such apparitions, as well as those said to be seen in haunted houses, may be telepathic effects, but not as ordinarily understood. For while the apparitions may be a projection from a human mind, yet we must know more of the nature of such a projection before such an explanation can be of scientific worth. Unless we conclude that a thought has a substantial form of some sort, that it becomes an embodiment of matter, however subtle and invisible, there seems to be no value in the hypothesis that a mental act in one mind can be transferred to another mind. The question involved is, What is it that is transferred? If it is the thought how can such a thought pass from one mind to another

without a material medium; what then is the medium?

In the theory I am advancing it seems to me both of these problems are answered and that strictly in accordance with discovered scientific laws. The thought is moulded in the brain in a physical substance, namely, the aggregate units of the associated cells. It is projected from the brain by the volitional energy within the corpuscular or radioactive emanation which forms from the chemical process in the cellular activity.

These subtle forms of thought, actually substantial, howbeit wholly imperceptible to the normal senses, permeate the ether, projected from myriad minds. Now and then a human being comes into life so peculiarly organised that his senses are susceptible to the perception of these floating forms of thought.

We must recall Le Bon's statement, that there is nothing invisible in nature; all we lack is the proper eyes. The chemical and physical laboratories, electrical instruments, etc., invent for us some of these eyes, or extra senses, and we see things in the air we knew not before existed.

The X ray is nothing but a medium for natural clairvoyance. Given an eye similarly constructed and such an eye would see through matter as well as the Ray that Roentgen discovered. Animals are constructed with eyes different from ours, as we know, and often see things we do not. Many of them see more clearly in the dark than we do in the day. We know that man cannot see but a very

minute portion of the spectra of the rays of light. "The invisible region of the spectrum constitutes the most important portion of the light. It is only the sensitiveness of the human eye which creates the division between the visible and invisible parts of the spectrum. It is, doubtless, not the same with all animals."*

I contend, therefore, that the only reason we do not ordinarily see the thought forms projected from human brains is because we have not the vision to penetrate the invisible rays of light that embody them. "According to Wedding's latest researches (1905) all artificial sources of light, including the electric arc, utilise hardly one per cent. of the radiations produced. *Ninety per cent. of the radiations emitted are, then, invisible.*"

If this be so, what wonder that occasionally things are seen in the air by some human eye, abnormally or extra-normally constructed, that the ordinary eye of man cannot perceive?

Why does it not stand wholly within reason and in full accord with these wonderful new discoveries that the ether may be charged with myriad forms of thought, embodied in these invisible radiations of light or in radio-active substance, which now and then a human being perceives to the amazement of the world, and animals discern to their horror and bewilderment?

The forms, then that linger in so-called haunted houses may be actual forms, though in no sense "spirits." The fact that they are usually clothed

*" Evolution of Forces," p. 230.

in the customary garments of the deceased, or in the garments they last wore, that they present the peculiarities of the departed, such as a limp, a stoop shoulder, etc., that they would convey a message which was the last thing of importance in the mind of the dying person, that these apparitions permanently disappear on destroying or burning down the premises—all these and similar incidents are proofs that the “thing” is not a permanent being, such as we conceive a “spirit” to be, but merely a residual mental phenomenon, a phantom form of thought, what I have attempted to describe as the embodiment of a mental act in radio-active substance.

It seems to me this hypothesis explains much without doing violence to nature or to science, or calling for a superlative degree of credulity.

CHAPTER XXXIV

SUBSTANTIALITY OF THOUGHT

It seems then, that intellectual honesty drives to the conclusion that what the animals see is something real; that in haunted houses the apparitions are not wholly figments of the mind; that when an image is projected from a distant person to another who distinctly sees it, the recipient sees not a mere mental image seemingly projected from his own mind, but something more.

It has been the dread of scientific investigators that they might slip into the occult which has prevented them from going further into these investigations and admitting the possibility of anything actually substantial in the visions and apparitions.

But it seems that the physical laboratory, material science if you please, has come to the unexpected assistance of the psychists and psychological investigators. I believe, as I have said, it can now be admitted that the apparitions do consist of real substance, of physical properties, without either tumbling into occult jargon or scientific absurdity.

Our studies thus far have shown us that thought, as now analysed, is actually a form of matter; that is, a series of movements in the cells of the brain, instituting a state of consciousness called a thought, become embodied in a form of volatile matter, consisting of electrons or corpuscular elements, possessing radio-active properties. This invisible form

of matter is as actual and substantial as anything else in Nature, although it is not amenable to the discernment of the physical senses. However, as there are stars whose vast distance from us renders it impossible for our sense of sight to apprehend them, yet may be grasped by the telescopic eye and indelibly fastened on the photographic plate, thus proving their existence; so, as previously shown, the volatile forms of material objects and of thought may be grasped by the sensitised plate of the camera and presented to our vision. Who would ever suspect on looking at a block of wood that there floated around its surface anything that the eye could not see? Who would ever dream that it is environed by an invisible gaseous aura, consisting of an exact shape and prescribed form, emitting such marvellous rays of light that they can be utilised in photographing their own spectral image? Who would imagine that a bit of metal once exposed to the light of the sun instantaneously garmented itself with a robe of invisible splendor so glorious that months afterwards it would be revealed to the eye through a photographic camera exposed in a room of pitchy darkness?

What is this that is imagined? Nothing? Why? Because it cannot be seen? Then the vaster part of the universe is nothing, for it is altogether beyond not only the ken of the human eye, but as yet that of the strongest glass invented.

If, then, the things that are seen by the mind, though apparently without body, can be actually photographed; if they can be cast through the air

or ether from one mind to another as if they were balls tossed by a juggler, it will not do to say merely that they are mental messages and hallucinations; they must be better understood and explained. Manifestly, they are *something*; they consist of some substance; and science cannot rest quiet until she learns what it is.

The fear of "spirits" and spiritualism should not drive science from a sensible and logical search for the truth.

It is, then, I repeat, tremendously gratifying to learn that there is a class of data, with which science has only recently become acquainted, (and for which she must extend her thanks to such serious and patient investigators as the Curies, Becquerel, Thomson, Rutherford, Lord Kevlin and Gustave Le Bon, in the physical laboratories, and Haeckel, Weismann, Bastian, Maupas, Calkins, Minot and Stephens, in the biological laboratories) which seem to qualify as a basis of explanation for the various phases of psychic phenomena that so long have mystified the world.

Taken all together, the results of these discoveries, as I have attempted to point out in this work, tend to present a scientific and satisfactory explanation, which seems to me, at least, to lift the veil of mystery.

The uninformed reader must not misinterpret me. I do not mean that these famous scientists had in any way concerned themselves with the problems involved in the study of these essays, save as they relate to what is known as the physical and vital

sciences. I merely mean, that all unexpectedly they have hit upon discoveries and possibilities in Nature which reveal to us certain of her laws and principles that seem sufficiently to explain the puzzling phenomena we are contemplating.

When Madame Curie and Professor Rutherford penetrated into the secrets of the atom they divulged knowledge of a most mysterious force in Nature, all these ages unsuspected, which manifestly enters not only into the arcane realm of physical phenomena, but no less into that of the so-called psychic.

The electrons—those mystical particles of negative electricity—those were the little imps that slipped out of the atom, so to speak, to whisper to the world the greatest scientific secret ever known. They, infinitesimal points of gyratory motion, are the magicians, the prestidigitators, the thaumaturgists of the universe. These are the myriad gods that move through space, transforming the cosmos, creating worlds and all that they contain, ceaselessly executing such miracles as the wisest of men cannot forestall.

And the half is not yet told. For what shall we not learn when that portion of the atom which is not yet severed shall be set free! Thus far only the force involved in the negative particles of the atom has been liberated; and this force is, as we are informed, the most magical and stupendous of any yet discerned in the universe. It is the creator of all the other forces now known, the father of heat, light, chemical affinity, sound, electricity. Such is the father of the atom—the electron!

But mark you, the atomic-mother, if I may be pardoned for so christening the positive ion, is yet bound, as the woman seems fated to be, and the marvel of her possibilities is yet unimagined. What shall we not learn when the mother-principle—the positive ion—has also been released as has been the father electron? How foolish to imagine we must look to unknown elements of the air, to imagined “spirits,” or “excarante forms,” for the solution of human and natural mysteries, until we have learned all that science may yet discover within the bosom of this age-married couple, that consecrate the nuptial bed of the mysterious atom!

With the discovery that the electric corpuscle, or the radio-active electron, is ceaselessly emitted from all forms of matter, and that these corpuscles are the accompaniment of cellular action in the nerves and brain; that, therefore, they are the constant attendant of every thought and state of consciousness; that they are possessed of an inherent will or individual volitional energy; and that they are especially amenable to the operations of the subconscious mind—with this discovery, I say, we have data sufficient to explain, it seems to me, all the phenomena so puzzling to preceding ages. For these—the electric corpuscles—are the radio-active garments of thought—they robe, literally robe, the warm sentiments of the soul, the cool lucubrations of the brain, the dreams of the poet, the calculations of the mathematician! These are all actual forms, clothed in radiant, howbeit invisible, garments. And this seems to be no idle fancy, but a scientific fact.

Hence, within these corpuscles abide the only things that are permanent in human experience. The thought that lives in our minds for a day and perishes, lives in these corpuscles forever; or at least as long as the corpuscles survive. If they live beyond the survival of the flesh, is another story, to which we shall shortly revert.

Here, then, is the laboratory and library of human life. Here are executed all the chemical transformations of our bodies; here are transmogrified into substantial form the flitting and subtle visions of the mind, we call our thoughts.

Here is the book of life upon whose invisible pages are indelibly written the deeds of human experience! What, then, is the past?—a palpable scroll open to the mind, made susceptible to its discernment. What mind is that? The mind whose sub-consciousness is so abstracted from the conscious that it can penetrate the depths of this radiant realm—the realm of the corpuscular elements—and call up what it will from its buried deeps. For it does but reassemble the invisible aggregates of past experience, and in the form thus conjured, reads again the thing for which it stands.

These thoughts are subject not only to the discernment of the immediate sub-conscious mind, but also to its control and manipulation. It can send them where it will—for they are substantial forms, built of invisible radiant matter—and can be utilised as the units of electricity or the Hertzian waves that accommodate human intelligence in the transactions of life.

But what of the future? What of events that have not yet transpired? Who shall foresee and foretell of them? Why not? It would seem that within the mysterious depths of this radiant substance all the universe is one. The sun is ninety-three millions of miles away, as travels the heavy foot of man; but it is only eight minutes away, as travels the swifter foot of light. It is still closer when borne on the electric wing, and were the X ray of such long endurance it might bring us instantaneously into his majestic solar presence!

There is a realm, indeed, where time and space are obliterate. And this, too, is not a dreamy or imagined world, but an actual world of matter. In pure ether there can be no space, there can be no time, there can be no separation. Necessarily all is one. What there is writ, is forever inscribed on the irrefragable scroll of eternity. There the radiant waves that move, if indeed they can move at all, must needs be of such inconceivably slight length as to oscillate within an amplitude so minute as to be beyond all possible calculation. In such a realm there can be no space, no time, no distance, no separation. Unity is absolute, and what consciousness may there exist can be nothing but the universal consciousness. In such a mind, if one so exists, there can be no ignorance of all that has or ever will transpire in the operations of the infinite. It can therefore be conceived that, proportionally as a limited mind approaches the amplitude of such infinity, it would take on more and more of its properties and possibilities. The nearer we approach

it, the more of its attributes we must assume. It can thus be conceived that there is a realm, composed of the corpuscular elements of which we have been writing, whose vibrations are of such minute amplitude, that the limitations of time and space are to them much modified, if, indeed, not obliterated. This corpuscular realm we have learned is especially accessible to the sub-conscious mind, and the more accessible in proportion to the degree in which the functions of the normal mind are suspended.

In profound depths, therefore, the mind might so penetrate the radiant realm of the corpuscles as to see written therein such events as must logically follow from what is immediately present to the sub-conscious mentality. That mentality sees far more and far deeper into life's realities and possibilities than the normal intellect. Hence, there could be discerned by this mind the radiant forestalment of events not yet transpired, but which, in the logic of things, known only to the sub-conscious mind, must necessarily ensue.

Space forbids my expounding this theory further. But a word may help. In disease, for instance, the ravages in the cellular depths are much profounder than the eye of the physician detects on the surface. Virchow reminded us that every malady was merely a disease of the cell. That is, the profound depth of the cell is affected long before the evidence of its depletion appears in the general organism. Were the human physician situated inside of these cells it would be easy for him to foresee the coming rav-

ages that would soon overtake the entire system. He would need be no mysterious prophet to declare the result. But there is such an eye within us. It is the eye of the sub-conscious mind. It surveys the depths of the physical system far beneath what the outer eye of the physical world can discover.

In a state of trance, therefore, the sub-conscious mind could discern these profound, but incipient ravages, and could easily foretell that their effects would soon be disclosed in the superficial organs. Hence a trance medium, as they are called, might indeed see the very interior of a person and detect a disease of which the ordinary physician might be unaware, and one in such a state could easily foretell a death or an accident that would befall.

And to my mind, in view of the marvellous discoveries recently made in the corpuscular or radiant realm of matter, all this could be done in perfect accordance with the possibilities of natural law and physical matter.

BOOK III

THE PROBLEM OF IMMORTALITY



CHAPTER XXXV

SCIENTIFIC HYPOTHESIS OF IMMORTALITY

It is but a generation since Huxley startled the conventional world with his declaration of the "physical basis of life," uttering a thought that revolutionised the conception of the ages. No longer could life be regarded as a principle void of form or substance, as a spiritual energy divorced from the limitations or processes of organised matter. All life manifested in every conceivable condition, from the fungus sprouting by countless millions in the body of a fly to the forest of foliage that overarches the earth from the cathedral-like spires of the California pine, or the Indian fig whose far-spreading branches disport their glory while kingdoms and empires rise and fall—from the myriad germs that float invisibly in the air, millions of which could actually balance themselves on the point of a needle as the schoolmen of old imagined the angels also could, to the great leviathan of the seas—the mighty whale—hugest of living forms that rolls its ninety feet or more of bone and sinew with graceful ease among the billows that stoutest ships of men durst not invade;—in all these various and boldly contrasted forms of life, Huxley had told us there was not one whit of difference when we contemplated the primal substance from which these protean shapes were made.

The life substance—protoplasm—is everywhere in Nature the same; nor anywhere is there or can there be conceived a form of life not moulded out of this primally structureless and transparent element. When first this revelation was made to a race still enslaved by the traditional ignorance of the centuries, it caused an insurrection whose pulsations in the world of thought are not even yet resisted. Many there are who still think that this reduces the "spirit" to sense, the sublunary mind to muddy matter. However, the world of science knows that Huxley then declared a truth which has since been absolutely demonstrated with a thousand different illustrations.

But when Huxley delivered his famous essay in 1868 he did not then know what has been probably demonstrated, or what at least presents itself to the scientific world as a proposition that will eventually be demonstrated with final conviction. In that famous essay Huxley said, with his accustomed eloquence: "Under whatever guise it takes refuge, whether fungus or oak, worm or man, the living protoplasm not only ultimately dies and is resolved into its mineral and lifeless constituents, but is always dying, and, strange as the paradox may sound, could not live unless it died."

Since Huxley's day there have been any number of discoveries to call this conclusion into question. As I have previously shown in these pages, science has now learned to distinguish between what is seen under the microscope, by the aid of certain coloring substances, as protoplasm, namely, the struc-

tural basis of living forms of life, and pure plasm or ultimate life substance which is ultra-microscopical; that is, which cannot at all be detected by any instrument or by the living senses. It is the necessary hypothetical physical ultimate of living matter. Here we enter into the molecular plane of activity and pass from the structural or organised plane of matter.

I will not again emphasise the point I have already made in previous chapters, and more thoroughly elaborated in my "Modern Light on Immortality," concerning the problem of protoplasm, more than to say the latest investigators insist that pure protoplasm is potentially deathless, insomuch as it passes from one generation of living forms to another, and that we find in the protists or protozoa, the lowest living forms, the same vital matter that existed since their prototype was generated on the earth. While certain studies, such as those of E. Maupas and Professor Calkins, did at first lead to the interpretation of the absolute death of the lowest discoverable forms of life, it is now admitted that their experiments have not fully demonstrated that theory. On this point Professor Minot, of Harvard, author of "Age, Growth and Decay," writes me privately that senescence and death occur "only in the higher animals; not in protozoa; whether true old age occurs in protozoa, or not, is as yet undecided." In his excellent book he states his own opinion, based on latest studies, even more emphatically. He says: "Death is not a universal accompaniment of life. In many of the lower organisms

death does *not* occur, so far as we at present know, as a *natural and necessary result* of life. Death with them is purely the result of accident, some external cause. Our existing science leads us therefore to the conception that natural death *has been acquired* during the process of evolution of living organisms."*

The life units, the shreds of protoplasm, the hypothetical molecules or corpuscles of living substance, then, are not essentially subject to death.

In my previous work I undertook to show the full force of this fact on the problem of the after life of human beings, and I will not here repeat the argument, but refer the reader to that work, if he be interested.

I will here merely draw the conclusion that the ultimate substance out of which the cells of all living bodies is constructed is itself structureless, invisible and potentially deathless. Against this proposition I do not believe existing science could logically utter a protest.

Modern science has not only ventured to study the mysterious temple of the inner substance of life, but even to penetrate its holy of holies and discern the very manner of its protean transformations. It studies not only the outward architecture but invades the sanctuary, assaults its inmost altar and halts the very mystagogues that preside over the mysterious functions. We are told that there are certain magicians who are so cognisant of the ultimate forces in Nature that they can by means of

*"Age, Growth and Death," pp. 214, 215.

their uncanny art bring to pass what they will. They need but think and it is done. They will and all must obey. They are the dreaded thaumaturgs of superstitious votaries, who speak their names in whispers only and fear their enmity as mediæval magicians dreaded the presence of the Cross.

However we may choose to laugh at such silly pretensions, we who are somewhat acquainted with the mystifying performances of Nature are wont to see far more that is marvellous and uncanny in the achievements of some of her minute and most humble creatures. Each little, tiny cell of life, whose diameter is not more than the thousandth of an inch, which the eye of man has but recently detected by the aid of the most powerful of microscopes, achieves each instant of its infinitesimal existence more marvels than Rosicrucian or Kabalist ever conceived. Contemplate, for a moment, whence came the myriad cells that make up the body of a living being. They came, if we consider only the cycle of the individual life, from a primal cell, a microscopical dot of protoplasm or living matter; whence, like bubbling yeast, it multiplies into hundreds, thousands, millions, billions, of offspring like to itself, yet each functioning in its own class differently from all the rest. Who built this wondrous structure? Who laid these cell-stones, so to speak, one on the other and all around in inimitable conformations, culminating in the complex edifice of a living body? Who taught these titanian cells when to come into being, when to associate and when to sever, when and how to act with precision and void

of error, under favorable or hazardous conditions, welcoming friends, fighting foes, seizing edibles, discarding toxins, with such wondrous success that the duration of the complex organism continues for generations, in some cases for centuries of time?

Experience alone has been the teacher; punitive sequence the disciplining schoolmaster. No extraneous ruler, or governor, or spirit, or deity, has taught this tiny adventurer upon the ocean of infinity what to think, what to do, what to prewise. All has come to it as the result of ages of antecedent experience and its own cyclic contention with opposing elements and forces. And yet how wondrous wise has it become; how wise above even the wisdom of the mighty mind that presides over the functions of its interior life; above the wisdom of the central mind that orders the destiny of the complete organism itself! As the author I have already quoted exclaims, were a human being as knowing as any one of the cells of his body he would be to other men as a god, beyond their powers and understanding.

This fact teaches us that every single cell, within the cycle of its existence and its prescribed functions, acts with intelligence, with wisdom, with understanding and with conscience.

Therefore each cell has its own mind and soul, product of age-long development and individual growth. In short, the cellular units have an individual psychic- or soul-activity of their own, potentially independent.

But as the result of experience, by dint of ancestral or hereditary tendencies, and especially because of the co-ordination of the cells that follow the organisation of the central nervous system of the higher forms of living bodies, culminating in the cortical areas of the brain—physical throne of individual intelligence and consciousness—the single cells solemnly surrender their independence and yield allegiance to the central or controlling will of the confederated body.

The tiny cells, each endued with intelligence, volition, consciousness, find their initial associates with whom to form some humble colony in the earlier states of development; these congregated or colonised cells, realising their strength because of their numbers, go forth to compel a *modus vivendi* with other colonies, who, discerning the benefit to result, willingly unite their colors with the conquering colonies; and thus, group with group, colony with colony, autonomy with autonomy, uniting, at last the several segregated and individualised cell minds and consciousnesses become co-ordinated into a supreme confederation, with one mind, one intelligence, one will, one self-consciousness, to which all the inferior minds agree to yield allegiance. Thus begins the reigning dynasty of the supreme consciousness of individual personality.

However, it must not be forgotten that at such a stage of government nothing better has been attained than a common agreement. The individual cells, groups, colonies, autonomies, have by no means been annihilated. They have simply been

submerged, fused, conglomerated, each, however, always maintaining its complete organism, and its inherent potential independence. Treaties in human experience are made to be broken; and no less is this the law of treaties made among cell organisms within a living body. Because a confederation has been established it does not follow that riots, insurrections, rebellions may not ensue. In fact they often do; and to this experience is due the oft occurring diseases, physiological frictions witnessed in fevers, willful growths in the form of tumors and cancerous sproutings, and the thousand and one different maladies that beset the mortal frame.

At such times we witness the atavistic outburst of long latent passions that once ruled supreme within the potent bosom of the tiny cell.

In every such outburst the momentous problem confronts the supreme, ruling self-consciousness, whether it be endued with sufficient integrating energy, to maintain its integrity against the bombardments of the invading foes. On the issue of this problem depends not only the restoration to health, but the still more eventful circumstance of the capacity of the controlling will to override the limitations of the cell-autonomies whose living force expires at the moment of their physical dissolution.

Constantly such cells are decaying, aging, expiring, and falling away from the superintendence of the reigning emperor. The farther we proceed toward the frontiers of the living form, that is, toward the peripheral circumference, the freer are

the individual cells to wander and follow their native impulses. The farther away from the central cerebral and nervous body of the cells the more mechanical and unattended are the activities of the cell units.

Thus it is apparent that the final fate of the central self, the seat of the self-conscious superintendent, will depend largely on its association with the different autonomies it controls. If it be most intimate with those colonies that are farthest removed from the central government, with the cells that have lost most of their initiative and exert themselves merely through mechanical or habitual prompting, naturally the fate of the controlling body would be sealed in the history of such cell bodies. Being intimate with such loosely constructed bodies, so susceptible to mutual severance, decay and death, naturally the cohesiveness of the self would be fragile and uncertain, and final dissolution would overtake it.

The state of such a psychic empire would be much like that of a political kingdom, where the ruler preferred to squander his time with vulgarians and rouses who had no interest whatever in the requirements of the seat of government, who sought merely their individual pleasure and detested the restraint of civil culture, who would induce the king to assume the habits of the swashbuckler and the mountebank, suffering his throne to become weaker as he grew stronger in his pursuit of pastime. The fate of his kingdom would of course be sealed with that of the rowdies whose company he preferred. Thus

with the central self-consciousness of a human or other living being. The final fate of the organism is determined by the self-conscious supremacy of the controlling ego, and the character of the cells with which it prefers to associate. The peripheral and muscular cells, the mechanical organs of the body, the most rapidly expire. The cells that compose the inner systems of the nerves and the brain, and especially the cerebral cells, are the most enduring, the longest lived. Hence if the central ego has been most engaged in the interests of these cells, it will deserve the fate that befalls them.

One most suggestive fact has been revealed to us through biological studies. This discovery proves that the brain cells are the last to die, the most highly endowed with living energy, and themselves prophetic of indestructibility. "The brain appears to be a colony of cells destined to live forever and capable of doing so, but for the weakness, diseases and frailties of the organism in which it has developed." (Stephens.)

The highest form of consciousness has developed concomitantly with the highest and most complex colony of living cells. This high form of consciousness required such a highly complex colony of nerves as the physical basis of its expression. This can mean nothing else than the prophecy of Nature that when an efficiently enduring psychic integrity has been developed by the individual it will be accompanied with an equally enduring colony of cells in which to exist and express itself. The further fact must also be remembered, that all the inferior col-

onies of cells are absolutely dependent on the brain cells, which proves to us that death which is common throughout the entire system does not seem to be essential in the brain centres. "Muscles severed from their connection with the nerve and brain soon atrophy and die. Stimulation from the brain and spinal cord is necessary to the life and function of all the associate tracts of the cells. These live only from their connection with the brain and are dependent on it for *motif* to live and work."

This latter fact is all essential; for it is demonstrated by numerous psychic experiences that the controlling energy of the mind, either conscious or sub-conscious, determines the work and results of occupation by the inferior cells. The mind by means of the brain cells can learn to control all the inferior colonies; can compel them to obey even contrary to their accustomed habits and characteristics. This is shown in the removal of scars by a mental impression, even as is claimed in some cases, of tumorous growths; it is shown also in the formation of stigmata on human bodies resulting from intense and exalted impression of the cranial cells on the cells in lower sections of the body.

The brain cells are also supplied with vital force nearer to the fountain head of life. Their nutriment comes, we are told, directly from the blood stream, whereas the meanwhile the muscle cells, the bone and gland cells are starving. Herein, says Stephens, is evidence that intellect confers strength and endurance. "The brain colony is the most enduring of cell unions."

Hence we may conclude that to the degree that self-consciousness enters into the activities of the brain and the higher nerve centres will its tendency be to cohere, to maintain its organised integrity, notwithstanding the opposition of contending forces.

And that there are infinite forces constantly at work, during the period of life, to disturb and dis-integrate the citadel of the self-conscious self, is of course manifest to all. Not only is the citadel attacked constantly by indwelling insurrectionary foes; but there is not infrequently an invasion of foreign foes which form allies sometimes of such strength as to overpower the reigning self and reduce it to subordination.

We have read in mediæval lore of some supposed magician who has so affrighted the reigning king he has by his arts succeeded in subverting his power and seizing the throne himself. Before the horrified eyes of the foolish ruler he causes images to arise that appear like hosts assailing his throne; summoned from the air they become legion, swooping with resistless energy on the unprotected fortress wherein the throne is seated, till the poor king, trembling and shrieking with torture, cries aloud for relief, even if he must yield his throne to the invader. At this psychological moment the magician assures the king he will himself interpose and occupy the throne, thus by his supernatural power driving off the invaders.

So betimes there beset the central and supreme ego of the self certain pretentious powers, claiming

that by their presence they reduce the central consciousness to impotency, and causing sufficient terror in time to overpower it as to permit the ascent of inferior or foreign personalities on the captured throne. In short, if the self-integrity of the ego can be sufficiently severed by the intrusion of personalities whose invading consciousness proves to be more powerful and conquering, then the ego goes down under the magical sway of the pretender or pretenders, and the intruding personality prevails over the normal ego. We have in previous pages introduced numerous incidents in illustration of this phenomenon.

The problem then presents itself as to whether if the ego be thus overcome it will result in its final and complete dissolution. We have seen that this is not necessarily so; that the tentative persistence of the central ego is logically possible; and that when the physical life finally expires, the last psychic energy active is that of the central ego in the lingering cells of the brain. This is often demonstrated in the surprising intelligence and exaggerated interest in the affairs of life immediately preceding the moment of death.

Hence we see the secondary personalities, the invading foes, will always be overcome in proportion to the integrity or persistent force of the central ego. Theoretically this ego always prevails, and in the last moment rises superior to the invading foreigners. This is shown in deep hypnotic cases where at last, as in the patient of Dr. Prince, as well as those of Professor Sidis, formerly intro-

duced in this discussion, the normal consciousness is restored.

It is logically to be assumed that the central ego, the seat of the self-consciousness, should have the power to prevail finally over any and all invading psychic personalities. For, by reason of its evolutionary development, it is the product of ages of growth or aggregation; it has been finally massed out of the infinite units which through the centuries have congregated to constitute the citadel in which it dwells. The momentary sub-conscious personality that invades the throne of the primary self is but an instantaneous creation, so to speak; its energy is therefore ephemeral, its tenacity fragile. It might be compared to the bubble that forms on the ocean. It may be constituted of the same essential substance, but the particles of which the substance is composed are so assembled in the bubble as to enjoy but slight cohesiveness, as compared with the water in the sea. Hence the slightest impression of wind or water instantly scatters its fragile vapory form.

Thus the momentary appearance of the secondary self is like a bubble, made up perhaps of the same psychic essence as the normal self, but so frailly constructed as to be easily susceptible to severance and destruction.

CHAPTER XXXVI

RADIO-ACTIVE ENERGY AND IMMORTALITY

Given a potentially deathless physical substance, actuated by an increasingly intensified self-consciousness, we have apparently the factors essential to continued existence after the dissolution of the structural framework through which they operate. The framework of the cellular combination may cease; but, if it can be shown that the potentially deathless substance of which the cells are composed continues to be permeated with the psychic energy of self-consciousness, will it follow that the psychic element may reorganise the vital substance into a new and more persistent state?

It is not at all my object, as I have repeatedly said, to prove immortality. I am simply asking and trying to find in Nature an answer to the question, whether her laws postulate or suggest the possibility of such after existence. If she seems to answer yes, and her answer is convincing, then we need look no further. If she answers no, however disappointing it may be, it is our duty to be resigned. What then is Nature's answer in the light of the principles stated above?

As regards the material vital substance, of which the cells are composed, we must recall what has been already shown that it is a continuous and unbroken material extending throughout the organic frame.

It is not, like the separate cells, broken into contiguous units, and linked together; but, as Dr. Wilson intimates, and what is generally admitted now by biologists, it constitutes what might be called a permeating fabric of vital matter of which the cells constitute the discernible mesh-work. The cells, so to speak, are built up out of and lie within the pure plasm. The cells are transitory, ephemeral, subject to decay and death. The plasm is constant, constructive, potentially free from senescence and dissolution. Conditions then being favorable, the cell bodies may pass away, but the cell substance would remain. What conceivable conditions would permit this result?

Of course it is constantly witnessed in the perpetuation of the species wherein by reproduction the potentially indestructible life-substance descends from one generation to another. But when death ensues, that is, when the bond that holds together all the constructive elements of living bodies is severed, then what possible force may survive that might re-organise the living substance into new associations?

We must again recall, that the cell unit is itself the product of age-long evolution. Being a product of evolution it must have been produced by some operative principle. What is that principle? Something directed the life of the cell from its prospective existence in primordial protoplasm to its final formation into a cellular entity. What was it? We have observed that each cell is constituted of a cell-life, individual and absolutely distinguish-

able from the cell life of all other bodies. In short, the cell has its own nature, its own intelligence or mind, its own instinct and soul. But has the intelligence that culminates in the complete cell always existed as an organised unity? We have learned that it has not; the cell-intelligence, mind or soul, is also a product of evolution, of gradual growth. Nevertheless, nothing only comes from nothing. Therefore, if the cell consists of an intelligent principle, perfectly organised, and such an intelligence is the product of evolution, then the principle must once have existed in an unorganised state. Where could it so exist? Manifestly the answer is that the germ of this mind must already have existed in the primal substance out of which the cell has been organised.

Hence we learn that in the primal plasm, or life substance, the germinal mind, or psychic energy, of the cell already exists. It is therefore evident that the cell organism finally comes to exist because of the urge or compulsion of the inherent psychic energy, or germinal intelligence, operating through its substance. When this psychic energy becomes sufficiently powerful it draws away, if I may so describe it, enough of the plastic substance of living matter to make an organised cell. The existence of the individualised cell depends, then, wholly on the intensity and qualitateness of the psychic force, or semi-conscious intelligence that pervades it.

Does this law also prevail when we contemplate the union of cells whose co-operation establishes

the empire of a living body? We find that it does. The general mind or intelligence, the common presiding principle, or soul, of an organised living being, consists merely, as already explained, of the subordination of the multitudinous cell-minds of the body to the one, central or supreme mind of the complete organisation. Now, we have also learned that the individuality of such a mind, its intensity, its persistence, depends on the complete suppression or submergence of the under-cell-minds, and its supremacy is sustained only in proportion to such subordination. Once a state of insubordination sets in, the autonomy of the supreme consciousness or mind is menaced, and the possibility of its absolute dissolution presents itself.

Plainly, then, the life of the individual cell, that is, the persistence of its individual organisation, depends on the intensity of the principle that makes for the integrity of its consciousness. Once the cell permits any intrusion on its confines, as when a foreign cell invades it, its consciousness begins to waver, it loses control of itself, it fails to defend itself, and, unless it recovers, finally dies and dissolves. As the single cell expires because of the diminution of its self-conscious integrity, so also the general consciousness, which is merely the composite of the submerged cell-consciousness, will also expire under similar conditions. The law then, plainly, is, cell-life persistence depends absolutely on the ability of the cell to maintain its consciousness: that is, cell-life duration is proportionate to cell-consciousness. Again, supreme self-conscious-

ness, or the self-consciousness of a human being, is wholly dependent on the capacity of the supreme ego to hold in subordination and logical subjection the multitudinous cell-consciousnesses of which it is composed.

When, then, the cells are all finally dissolved there must still remain in the substance, from which they were originally constructed, the psychic energy, or the principle of consciousness, or, as some would say, the impress of the soul.

We are not for a moment to suppose that consciousness, or mind, or "soul," can exist without a material complement. So far as Nature teaches us, such principles are not without material form. Therefore, unless at death there remain over some sort of material substance, that may continue to provide a material habitation for the mind or soul, it is useless to speculate, from any scientific point of view, as to its post mortem extension.

From any conceivable scientific view point, then, we discover two essentials of after-death existence. First, there must be some kind of material substance as the tenement or habilament of mind-energy; second, there must have developed, as the result of evolutionary growth, in this life, a tenacity of self-consciousness sufficient to integrate this substance into a new form or organisation after the expiration of the old or dissolved form.

Do biology and psychology provide us with such essentials? Here we arrive at the very climax of modern discovery and speculation, and our progress must necessarily be cautious and unventuresome.

Nevertheless, it seems, at least to the present writer, that most recent discoveries both in psychology and biology, involving, too, discoveries in the physical forces of nature, appear to present the very essentials of an after-death existence we have above postulated.

As regards the psychological data I will say no more than that I think sufficient information has been presented in this work, and especially summed up in the preceding chapter, to call for no further discussion. We have learned that the self-conscious ego is endued with a force or faculty of determining its own persistence, dependent chiefly on its exercise and culture. That force is the Will, or the volitional energy. This I showed was satisfactorily proved in many hypnotic experiments. We are, then, scientifically allowed the first postulate, namely, that the self-consciousness, once evolved in a highly developed human being, is susceptible of such continuity as is determined by its will or volitional energy.

The intensity of the volitional capacity is, however, qualified by the nature of the substance through which it operates. That is, the cells themselves, especially the brain cells, prove to be peculiarly qualitated organs for accommodating the variety and degree of self-consciousness manifested in a human being.

We have already stated as admitted by Haeckel and others that different portions or sections of the cells are utilised by nature for different purposes. The outer cell-layers have been educated to the muscular or objective utilities of life. They respond to

the stimuli that the external world provides, and build up the more opaque and manifest parts of the body. All the lower nerve centres are actively employed in this realm of activity. This part of the cell is employed chiefly in the mechanical and habitual workings of the system. But within the deeper centres of the cell, that is, within the realm of the pure protoplasm, there is found the immediate instrumentality of the energy of the mind that is registered in what we know specifically as self-consciousness. As Haeckel emphatically declares, there can be no higher consciousness, no consciousness of self-recognition, until this profound depth of the cell is vibrated. But it is permitted to no power to penetrate this holy of holies of the cellular temple save the supreme intellect, or the faculty that thinks, reasons and divines.

There is, however, a still more marvellous differentiation of the living matter, only recently discovered, which seems to be employed in the human being for special, important purposes. All matter is constantly emitting a subtle emanation, because it is in a state of constant dissolution. The eternity of matter, in the absolute sense, is now about to be surrendered as a scientific dogma (Le Bon). Something is constantly passing off from matter that is so near to the ultimate ether of which the universe consists that it cannot be defined in the scientific terms of matter. It is an invisible, ultra-refined, unmicroscopical element, whose existence is only determined by certain unexpected results that have recently been observed. This refined element or ema-

nation consists of incomputably minute corpuscles which are discharged into the ether at a rate almost inconceivable. It is this force, we are told, that is at the basis of the universe, and from its activity all other forces are generated. It is, therefore, the primal and ultimate energy of the infinite.

Now passing from the physical to the vital universe, we learn from Le Bon, Rutherford, and others, that protoplasm itself is a state of matter from which this subtle, corpuscular substance is constantly emitted, and that the vital cells are always surrounded by an atmosphere of this radiant energy. In short, not only are the cells constantly aging and dying, but the very material of which they are composed is also in a state of ceaseless dissolution, with the result that they emit a constant energy, or subtle emanation, whose properties are wholly distinguishable from all other known substances, and exhibit powers of endurance that seem to defy the opposition of all other forces. This substance is finer than electricity, finer than the cathode or the X-rays, for it seems to be the source from which those are derived. It is qualitatively near to what the ultimate ethereal substance of the universe is conceived to be. It is the closest approach to final ether of any substance yet discerned in Nature. This being so, its durability in any formative state would of course depend on the energy that actuates it.

Now, the final remarkable discovery which science has recently revealed relative to this mysterious substance is that in vital forms, more especially in such highly developed forms as human beings, this

subtle element is discerned as constantly playing around the avenues and centres of the brain and nerve cells, in a state of ceaseless flow, which, could we see, would appear like a river of radiant glory bathing the throbbing cells of life.

But what we must now learn, is whether this marvellous substance is specialised by Nature in the living organism for any particular office. We have found that the different regions of the cell are utilised by nature in different offices, specialised for distinctive purposes, some of which relate to the muscular, some to the sensational, some to the intellectual, some to the reproductive, and some to the hereditary requirements of existence. We have found that there are specific centres of consciousness within the cell substance, rising gradually from the germinal or suggestive consciousness in the unicellular protists to the full-formed state of self-consciousness in the multicellular centres of metazoic beings.

But now we are to learn the most startling of all these specialisations of Nature, in the fact that the subtle, ultra-refined substance to which we have been referring is utilised, in the operation of the brain cells, as the immediate instrumentality of the will, or the volitional energy.

In short, we now learn that the most delicate, refined, persistent and unconquerable of all substances known in nature is employed by her in the highest states of evolved consciousness for the uses of the individual will. But we saw in a previous passage that the intensity of the individual will determines

the continuity or tenacity of the individual consciousness. We have also learned that this substance is the product of the ceaseless death or dissolution of the vital matter which makes the basis of the cell units. Out of the death of matter, then, there is constantly evolving a matter which in the last analysis is absolutely deathless, for it is apparently the very basic substance of the universe itself. This ethereal matter emanating from the vital cells, which constitute the organ of the brain, is the instrument of the will that determines the degree and pertinacity of the self-consciousness which evolves from the union and co-ordination of the cell units of the brain.

Apparently, then, we have come upon all the essential factors of an after-death existence. All seemingly depends on the personal use we can make of these factors; dependent on individual education, discipline, knowledge and desire. If we can so intensify the energy of the individual will that we can bend the magical element, which forms the substance of its activity, to the end we desire, it may be that even when all the visible, or even the immediately invisible units of the physical organism have expired and dissolved, there still survives a far more ultimate and subtle substance, though product of the dissolving substances which so long have served us, yet still susceptible to the energy of the will, which from the beginning constituted the immediate energy that actuated it.

In short, the radio-active particles, that ceaselessly emanate from the ever decaying vital cells of

the body, are at hand for our use and, if we wish, for perpetuation in such modes of vital existence, even after the organic death of the system, as we may determine by the energy of the personal will that constitutes ever the ridgepole of the individual self-conscious life.

I am not laying down this proposition as an incontrovertible law of Nature, but merely as a palpably logical deduction from the physical, biological and psychological data set forth in these pages. All these data of course the reader understands are not without the avouchment of the most authentic scientific authorities. I can but give the data. The reader will work out his own deductions. Yet as for myself, I cannot but feel the resistlessness of the logical deduction I have just enunciated.

It is even given to us, in a certain sense, to enjoy a foreglimpse of this supposed sublimary state. We all more or less have experienced states of consciousness that seem for the time being to rise superior to the momentary limitations of the fleshly organism. Indeed the highest achievements of man have been attained at such moments. It is in such states that come the flashes of genius, the lofty flights of inspiration, the revelations of creative art, the raptures of mental and spiritual transport.

I am well aware that also at such times come the wanderings of the insane, the rhapsodies of hasheesh eaters, the vulgarisms of voodooism and the extravaganzas of dervishes and savage worshippers. Nevertheless, it is manifest that even in these lower phases a force has been released in the human sys-

tem, especially in the lower brain or nerve centres, that acts as if it had come from some deep source, uncommon in all the normal experiences of men. As I have previously intimated in these pages it is now biologically determined that at such moments there is an especial agitation of the plasmic realm of the cell units which releases the energy known as intratomic, and which is accompanied by the radio-active substance already described whose presence often reveals wonders in nature startling to mankind.

It matters not whether it be on the low plane of savage voodooism or on the lofty plane of inspirational genius, when such experiences occur they operate through the same centres of force and the same ethereal substance that, as I have already intimated, may constitute the element in which the persistent will of individual consciousness may formulate the desire for continued existence and thus override the dissolution of death.

If the above facts be true, and the philosophical deduction I have made therefrom be logical and conclusive, then it would seem that there is a natural possibility for the self-integrated individual consciousness to mould the ethereal substance that ever emanates from the body's decaying centres into a surviving habilament for the persisting Ego.

For, there is one more important fact we must introduce into our argument, which adds to the force of the deduction we have already made. In my former work, "Modern Light on Immortality" I dwelt with considerable emphasis on the use which

Nature seems to make of the energy involved in the principle of organisation. I attempted to show that when once an organised body was established, the very principle of organisation itself becomes a power superior to the units or factors that entered into the organisation.

Organisation itself appears in Nature to be a self-perpetuating force, an energy that seems to increase its own inertia; a fact, as I said in my former work which has apparently been wholly overlooked by most philosophers.

A machine, once organised, becomes a thing wholly different and apart from the elements or factors that entered into its construction. Each element is of course essential to its existence, yet once the elements are united into a common whole, which constitutes the machine, it becomes an entity wholly distinguishable from them all. The principle of the organisation then becomes superior to all the component parts, and acts as a superintending agent. The machine does the especial work for which it was built, not merely because its parts are fitting to its uses, but because they have been so arranged or organised as to make them subject to the presiding principle or purpose of the machine.

But the principle of organisation in living bodies is dependent, as we have psychologically learned, on the determining efficiency of the self-conscious volitional energy. Once the substance of which the vital cells is composed, the potentially deathless substance which is constantly emitting the ethereal element that forms the basis of the will activity—

once, I say, this substance is organised into the integrity of a highly self-conscious human being, then the very fact of this organisation determines the inertia of the self-consciousness. The will-empowered ego, then, acts like a hand within a glove, shaping it, moving it, using it, as the will may determine.

I am pleased to note in a treatise which appeared, or at least fell into my hands, subsequent to the publication of my "Modern Light on Immortality," that this same argument is cogently used in contemplating the possibility of increasing the longevity of human beings, far beyond the present term of human life. In Dr. Stephens' "Natural Salvation," a remarkable work, to which I find myself much indebted in the prosecution of this volume, notwithstanding its purport is what most people would denominate materialistic, I find the following passage, which, by the way, quite overturns the conclusion at which the same author had arrived at an earlier period of his studies, and which I have previously quoted in this publication. He says:

"We failed at first to comprehend that while in exposed, unprotected unicellular life the individual could not live for more than a few days or weeks at most, and was obliged soon to resort to reproduction to escape race extinction; cells could be found in multicellular organisations, (the brain of a man or an elephant, for example), that live for a century or two centuries. In short, that multicellular life is a long-established, co-operative method, on the part of the cell life, to live better and longer, looking to complete salvation under nature.

"At that time we failed to comprehend this larger

effort of cell life. . . . Nor did we then perceive that these grand co-operative unions of differentiated and specialised cell-life give rise not only to animal organisms, but to a HIGHER, ORGANISED, PERSONAL LIFE, which reacts strongly to preserve and perpetuate the component cell-units, and that the more intelligent that personal life becomes, the stronger grows the effort for self-maintenance and self-salvation." (The capitals are mine).

My readers will observe that this statement completely retracts the contradictory assertion of this same author, previously quoted in this book, to the effect that necessarily in death there must be a total and irreparable disaggregation of the combining cells. For, he finds that there is a natural culmination or crest of the wave of life developed in the association and co-operation of the cell activities. If this be so, and it is undoubtedly indisputable, then we need but contemplate the fact that the ulterior substance of which the cells are composed is potentially deathless, and that the especial collective substance utilised in the development of the higher intelligence and consciousness of the cell life is radiant matter, which evinces the most powerful energy known to nature, to realise the possibility, if not probability, of the extension of conscious existence in an organism composed of this substance after the complete dissolution of the cell units.

As the longevity of planetary existence has enormously extended from the merely momentary life of ephemera and protista, or elementary unicells,

*"Natural Salvation," by Stephens, p. 122. , ,

to the century span of vital duration in the higher multicellular organisations; and, as this has resulted from the firmer cohesiveness of the cellular union, resulting from the intense self-consciousness consequent on intelligent co-operative activity; it stands to reason that if the substance of which the cells are composed, that is the pure, structureless unorganised vital plasm, is inherently deathless; then, the more tenacious the self-consciousness of the aggregate cell-union becomes, the greater is the assurance of the continuity of its existence, in spite of the dissolution of the component cells. For, we have seen not only is the vital substance itself deathless under ideal conditions, but it is accompanied by a ceaseless flow of radiant matter which embodies the most potent energy in nature and is itself directly amenable to the control and operation of the will of the individual. *The force of the personal volitional energy exercised in radio-active particles gives promise of a conquering personality which shall survive the decay of the coarser substance of the cell aggregate.*

As the essence of our planetary personality inheres in the will which is the immediate energy that actuates the corpuscular elements of radio-active energy, and as the will is the centre and stay of our self-consciousness, it would seem to follow that such members of the human family as have evolved, by stress of earnestness and fibre of character, a will strong enough to maintain a continuing self-consciousness, will pass from this sphere in a mantle of radiant matter, which shall be moulded

to the higher uses possible within more rarified realms of ethereal substance.

Whether this be an absolute fact in Nature can, of course, at present, only be conjectured. But that the most recent discoveries seem to indicate it, can scarcely be doubted, it seems to me.

If science vouchsafes us this much as the groundwork of an hypothesis of an after-life, we should not long remain in mere speculative experimentation; but soon prove or disprove the hypothesis by irrefutable demonstration.

Are we nearing the time when such a demonstration shall be made in the physical laboratory? Present discoveries seem to be pointing that way.

CHAPTER XXXVII

SUMMARY OF SCIENTIFIC ARGUMENT FOR IMMORTALITY

In order to present the argument advanced in the preceding chapters relative to the problem of immortality I shall here briefly recapitulate and summarise it by a series of sequential propositions.

1. The primary vital substance of which the cells of a living organism are composed is primarily structureless, molecular, ultra-microscopical and potentially deathless under ideal conditions.

2. Each cellular unit evolves its individual mind, intelligence, consciousness and functional energy, potentially independent of all the other cells.

3. By means of the co-operation of the infinite cells in the organisation of the central nervous and cerebral systems, culminating in the cortical areas, the individual cells surrender their autonomy and yield allegiance to the central will or supreme, coordinating intelligence.

4. The composite of the individual cell-consciousness, co-operatively merged in the common consciousness, institutes the controlling self-consciousness, or supreme ego, of the individual.

5. The composite self-consciousness, evolved by the process of the organisation of the single cell consciousness into a common unity, thus itself becomes, by reason of such organisation, the supreme controlling power of the entire body.

6. The persistence of self-consciousness, thus instituted, as the integrating principle of the organisation against the rebellious tendency of individual and colonised cells, such as are evidenced in disease, senescence and decay, depends upon the cell centres wherein the self-consciousness has been most emphasised.

7. If the consciousness has been most emphasised in the peripheral cells or the cells of sensation and muscular activity, as these operate mechanically and somewhat independent of the controlling consciousness, there would be a disposition of the self-consciousness to disappear in the dissolution of these cells; for the psychic bond that unites them would be fragile and uncertain.

8. To the degree that the self-consciousness has been centred in the cells that enter into the activities of the brain and the higher cortical centres, (inasmuch as these are more directly the instruments of the conscious will and intellect, or the controlling ego), to that degree will there be a tendency among these cells to cling together or cohere in conscious association in spite of disintegrating forces.

9. The cells which have been subjected to the uses of the sub-conscious mind, or have been the instruments of induced foreign personalities, will cohere to the extent that they are able to resist the energy of the cells which constitute the organisation of the ego, or the central self-consciousness of the normal individual.

10. In such organisations as shall have developed a self-consciousness sufficiently powerful to

sustain the integrity of the central ego, or normal personality, the secondary personalities will be obliterated, and the normal or primary personality alone prevail.

11. In such organisations as have developed an abnormal exaggeration of one or more of the invading, secondary personalities, and the central ego has been apparently abrogated, there would be a tendency to the ultimate dissipation of all consciousness, because of the unstable coherence between the elements of the momentary or transient personalities.

12. But if the primary personality is of sufficient strength to maintain the self-consciousness of the Ego, it may persist after the dissolution of the cellular units that compose the material body, because it operates through a potentially deathless substance. The substance being potentially deathless, and plastic to the impression of the indwelling psychic energy, may be new moulded under more amenable conditions and prevail after the dissolution of the body.

13. The revelations of recent scientific discovery now acquaint us with the nature of the protoplasmic elements which the self-conscious Ego appropriates and may carry forward into an after life. While the ultimate units of the living substance are structureless and indestructible, nevertheless the atomic units of which it is composed are being constantly severed or torn apart. In this act of separation of the electrons of the atom, which is always accompanied by the emanation of an immaterial

substance of radio-active quality, there is released the most potent energy known to nature, namely the intra-atomic energy.

14. This immaterial emanation of radiant matter flows ceaselessly around the cell centres of the brain, and is the immediate instrumentality of the energy of the will. It is the substantial garment of sentiency, volition and consciousness. Indeed without it apparently these elements of life could have no expression. In short, the will energy, which is the center-force of personality or self-consciousness, is itself radiant substance—that is, a pure immaterial emanation, radio-active, electric and all-penetrative.

15. When this substance is directly manipulated by the sub-conscious mind, or subjective will, it is susceptible to extraordinary manifestations, such as intervention with the laws of gravity, levitation, moving ponderable objects without apparent contact, etc., etc. In this lower phase of volitional activity it demonstrates its superiority to the physical laws and forces in nature. But

16. When it manifests its properties in the intellectual, emotional and reflective realms, then it becomes the instrument of the expressions of genius, of creative art, of oratorical inspiration, and of such phases of personal force as are far beyond the normal capacity of the individual, who becomes its momentary instrument. There is a consciousness which is above the ordinary, commonplace consciousness of the individual. The normal consciousness is the result of the aggregate life of the com-

posite cells of the brain. But there is a consciousness which tends still more to liberate the mind from the aggregate limitations of the united-cell-minds of one's body. This is the consciousness which contemplates complete liberty, total release from the confining conditions of the coarser elements of the cell substance. This is the consciousness wherein one dwells in pure reason, in abstract intellectual absorption, in contemplating an ideal, in discernment of the universal. It is the highest plane of consciousness of which the mind can conceive; it is the consciousness of cosmic or monistic unity.

17. We now learn that, even before the body is dissolved in death, there already evolves within it a subtle substance which seems to act as the especial instrumentality of this exalted consciousness. Within the substance of the cell we find the physical groundwork of the spiritual planes of consciousness, or the psychic activities. The outer substance of the cell is the instrument of objective consciousness, the realm that appertains to the muscular and peripheral activities. Deeper within the cell, so to speak, the plasmic centre, we find the pure substance, the nucleal plasm that acts as the instrument of the subjective consciousness; the consciousness that relates to pure intellect and formative thought. While, around the cortical cells and all-enswathing them, as a golden light, we discover the super-substantial, ultra-material, radio-active emanation, that constitutes the direct instrument of sentiency, volition and self-consciousness in its supreme state.

18. Being thus endowed with a self-conscious-

ness which has been evolved from germinal cell-consciousness, and sufficiently energised to organise the union of the myriad cells necessary to the expression of its supreme autonomy, and this psychic consciousness, or personal ego, being expressed through potentially deathless substance, which is ever accompanied by radiant matter whose energy and properties are superior to all other known substances, there reside in the human being, apparently, all the factors essential to the continuity of personal existence after the dissolution of the cellular units of the physical body. All seems to depend on the tenacity of the self-consciousness, the strength of the personal will, the potency of the character or the determinism of integrated individuality.

CHAPTER XXXVIII

CONCLUSION

The universal consciousness of life, and its constantly inciting activity, is the groundwork of belief in immortality. Were we able to realise the consciousness of death as we do that of life, these fleeting years would seem to be truly prophetic of the ultimate cessation of existence. For we know not only that the years are fleeting, but that they are growing constantly fewer in number and leave behind the traces of decay, symbolical of the body's total dissolution. Nevertheless, we cannot realise the full force of this prophecy, because even though we are ceaselessly dying, yet we never know aught but that we are ceaselessly alive. We know only life; we cannot by any possibility know death. We realise life; death we can but observe.

Constant association with the living body enables us to compel its response to our query whether or no we are alive. By the message of the tactile sense we learn of the objective world, and learn to distinguish it from the inmost sensations of mind and body. Through the sensitive windings of the outer and inner ears we discern the rhythm or discordance of vibrations that speak to us of a source of influence separate from ourselves. Through the magic instrument of the eye the far reaches of the universe are securely compassed and reflected on its inward mirror to the sleepless watcher within. On

the tablets of the mind are forever written the records of an active world; the drama of compelling interest.

Thus is Life its own evidence and revelation.

But by whom or by what has the reality of death ever yet been revealed? Who has ever yet returned to report to us its meaning? Who can answer the ever unanswerable question: "What is Death?" How does death differ from life? What happens at the moment that the breath deserts the body and the blood no longer surges from the heart? Is life but death in process or is death a process of life? While we live are we too dead to live forever; or when we die do we perish because of a suprabundance of life? Are life and death eternal foes or, in fact, perennial allies in the warfare of existence?

Whatever be our view of life, how much soever our philosophies may conflict, nevertheless, we are aware that we are contemplating the personal experience of actual existence. Our views of life are positive; because we know that the experience of life is positive. But our views of death are necessarily speculative, conjectural, indecisive. We can no more than hold death in the mind as a possibility. Never can we realise it as an experience. We are aware that we approach the deeply gloomed vestibule of the dismal temple; but once there, like as when we fall asleep, we cut short the thread of living thought, so we enter the temple of death, but nevermore can say to ourselves or to others what we have witnessed amid its unfathomable and mysterious crypts.

Hence, ever has death appealed supremely to the poetic sense; to the sentiments of the soul; to tropes of speech and phantasies of thought. Reason has ever stood blanched and still in its presence, for when death approaches "the dread of something after" chills the blood of intellectual adventure.

Ever have men sought to conceal its cadaver, its livid face, its darkened eyes. Over it has been cast the mantle of romantic imagery, the sable robe of sympathy, the radiant wing of hope. The very fact of life disputes the reality of death. We refuse to accept its testimony. We pierce the clod and insist on beholding in imagination the glory that radiates beyond.

Who can think of himself as never thinking? How can a living soul conceive the experience of not living? By no possibility can the mind contemplate a negative. As nature "abhors" a vacuum, so the mind abhors a negative. The instant one asserts a negative he has already transformed it into an affirmative. Experience is replete with paradoxes.

Do we say "no"; our no is yes. Would we contradict; our contradiction is agreement. For to contradict one thing we needs must assert another. Nothing exists by itself; everything is known but by comparison with something other than itself. Who, indeed, can think of nothing? The instant one essays it the nothing becomes something. Experience is positive; therefore all thought must be positive. Can one think of empty space? The moment one attempts it, already is the spacial void peopled with one's own fancies.

I am asked, Is it day? If I say no, I have already answered it is night. Every negative is an affirmative in disguise; every affirmative reflects a negative shadow. Therefore, language is ever dual, each opposing term expressing not a negative, but an opposite affirmative. Light has its dark; warmth has its cold; truth has its error; beauty has its ugliness; sweetness its sour; joy its sorrow; health its illness; life its death. Yet in each instance the seeming negative is but a description of the affirmative. All is affirmation; what we think negative is not annihilation of affirmative, but merely its variation.

Science challenges Nature to produce a void. She cannot. The Mind challenges thought to produce a negative. It cannot. Every void is a plenum. Every denial is an affirmation.

Such is the necessary mood in which one must contemplate the state of death. One cannot regard death but as the opposite of life. Not, indeed, as the destruction of life; for of that no individual has ever had a conscious experience. Hence ever must man speak of death in terms of life; ever must he dream of it in phases of his actual sensations. Therefore, by an instinctively logical process, there has entered the mind of man the notion of the deathlessness of life, the illusiveness of death.

Hence the age-long dream of immortality. Hence the poetic symbolism with which the thought of death is ever overcast. From earliest times men have dreamed of the continuity of life beyond the grave. Heaven and hell, Tartarus and Elysium,

were seeming realities to the ancients, as even yet to many moderns, because they could not realise the passing of their honored heroes and their loved and loving friends into an inactive, invisible world, where hearts would cease to throb and souls to feel. Therefore they follow them into the impenetrable vistas beyond with the same noble deeds, the same tender sentiments, as thrilled the drama of existence while their bodies were still present. Those brave and active minds, once aglow with thought and passion; those heroic warriors, the bright cynosures of men's acclaim; it cannot be that they are now but dust; their minds throbless, their hearts all senseless. This universally prevalent notion is beautifully expressed in Matthew Arnold's version of the legend of the Valkyrie:

“ And the Valkyries on their steeds went forth,
Toward earth and fights of men; and at their side
Skulda, the youngest of the Nornies, rode;
And over Biforst, where is Heimdal's watch,
Past Midgaard Fortress, down to Earth they came;
There through some battle field, where men fall
fast,
Their horses fet-lock deep in blood, they ride,
And pick the bravest warriors out for Death,
Whom they bring back at night with them to
heaven,
To glad the gods and feast in Odin's hall.”

Sometimes the love of the departed is so intense, it is impossible for the deserted in this life to await their return. The gods must be implored to bring them back, as Hercules brought back the beautiful 'Alcestis to the mourning Admetus, and Jesus re-

stored the three-days' buried body of Lazarus to his weeping sisters.

Sometimes the tomb is the actual home of the living dead, and one mourns beside it because one can no longer behold the apparition of the tenant.

“And so all the night I lie down by the side
Of my darling—my darling—my life and my bride,
In the sepulchre there by the sea,
In her tomb by the sobbing sea.”

And however much we may try to school our minds to another thought, the presence of life is so constant and palpable it is impossible for us to realise that it ceases when the body perishes.

Science and logic may come with scalpel and syllogism, to demonstrate to us the futility of the dream, the folly of the hope, nevertheless, the presence of life is so vivid we cannot believe it has forever vanished. The desire of the heart is paramount to the decision of the brain. The love of life is so potent it refuses to be deceived by the delusion of death. Imagination is so rife and native to the mind, it easily constructs a future for the departed which appeals convincingly to the heart-sick mourner. We are still infants in thought and our faith is that of childhood. We may reason as we please we cannot reason ourselves away from the consciousness of existence. To the most of us, the dead are still living—aye, living, never to die. A gentleman recently told me this story. He was conversing with another about a celebrated orator. The young man spoke of him as though he were

still alive. My friend reminded him that he should be spoken of in the past tense. The young man, a moment confused, looked up strangely and said, "That is true; but somehow I cannot think of him as dead."

Such is the faith of the ages, the instinct of the heart, the seeming reassurance of the soul. Beautifully has Wordsworth reflected it in his little poem:

"How many are you, then," I said,

"If there are two in heaven?"

Quick was the little child's reply,

"O, master, we are seven!"

"But they are dead; those two are dead;

Their spirits are in heaven;"

'Twas throwing words away; for still,

The little maid would have her will,

And said: "Nay, we are seven."

Such a simple, childish faith is in point of sentiment, indeed, beautiful. But is it wholly desirable? Shall the dream of childhood continue to be the fancy of age? Must philosophy and science resolve themselves into mere poetry in the presence of the most solemn experience of mortal existence? Shall the drama of reality be converted into a romance of the imagination, however impossible, because the mind hesitates to shock the heart, or knowledge fears to disturb the sensibilities of the soul? Is faith fairer than truth, comfort sweeter than conviction, delusion nobler than reality?

Is it not wiser that we listen unhaltingly to Nature's voice, that by her laws she may determine

for us all the issues of existence? How often have not our passionate desires disappointed us? How often have the promises of some illusive faith deserted us, who fondly clung with desperate devotion to its dissolving form! Were not once the gods of old supreme, and did they not assure mankind of protection and defense? How glorious those ancient temples; how supernal their divinities! And yet with seeming ruthless hand hath Science bit by bit rent the deceptive veil and scattered the corpses of expired deities in the wilderness of human imagination. How unsanctified now the dust of ages gathers on ruined temples reared to pious Fancy! Where now is the beautiful divine Apollo, the majestic reign of Minerva, the hunting ground of Juno, or Jupiter's irradiant thunder? Where now are the shadowy heights of Olympus, the sepulchral shades of Hades, the flames of Tartarus, the undying splendors of Elysium? If ever thus have faiths and fancies, however sacred, vanished under the glare of increasing knowledge; if ever the fair hope of famed Hesperides, beyond the crystal sea, dissolves, and its golden apples, once grasped, turn to ashen fruit; if ever, like an illusive mirage, they have deceived, howbeit for a time regaled the heart; is it not wiser to await the more lasting triumphs of undaunted Science, the explorer of the infinite; to welcome each new island of truth discerned in the shimmering seas of fanciful faith? Is it not wiser to discover and exult, than to conjecture and rejoice?

And if, perchance, in such discovery all that we

have heretofore been led to hope for and anticipate, be not fulfilled; if, mayhap, it shall be shown that there exists no general Elysium into which the gods shall gather the elect of earth; nor a gruesome Tartarus whose singeing flames shall mantle the limbs of ill-starred mortals; need we despair? If all has been but a beautiful dream or a hideous nightmare, why should we not learn the truth as Nature is willing to reveal it to us?

If, indeed, there be a life beyond, we should not halt to learn the law by which it may be attained; nor think that it is our due because we have been forced into existence here.

As struggle, conquest, achievement, in spite of obstacle and opposition, is the law of this planetary life, Nature may yet show us that the like law must needs prevail in what life may be beyond the grave. It may be that some shall live, though omniverous Death may seize us all. But Nature may yet explain to us that life continues beyond, not merely as a necessary consequence of the life that here exists, but is attained by conquest, by stress of effort, by strain of character. It may be, as has been intimated in the deductions made from scientific revelations in the preceding pages, that only they shall go into another vital experience who shall prove their right by force of moral fibre, by tenacity of purpose, by virility of personal consciousness. Perhaps the poet sings in imagery the truth that Science reveals in sober fact.

“Foil’d by our fellow man, depress’d, outworn,
We leave the brutal world to take its way,

And, Patience! in another life we say,
The world shall be thrust down and we upborne!

“ And will not, then, the immortal armies scorn
The world’s poor, routed leavings? Or will they,
Who failed under the heat of this life’s day,
Support the fervors of the heavenly morn?

“ No, no! The energy of life may be
Kept on, after the grave; but not begun!
And he, who flagg’d not in the earthly strife
From strength to strength advancing,—only *he*,
His soul well knit and all his battles won,
Mounts, and that hardly, to eternal life!”

Scientifically interpreted, I am inclined to believe that the above lines of Arnold are a truthful, poetic discernment of the law that postulates the possible life beyond the grave, which may await the triumphant of earth, whose achievements shall have *earned* what no deity can grant, what mere idle and impassive faith cannot bestow.

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consensus of the psychic 'cells' having developed an organic self-consciousness by which they are in turn co-ordinated into a unitary working possibility, may correspondingly be supported by appropriate environment. This amounts to a doctrine of a spiritual body, and a psychic personality, surviving the process of death. This, however, happens only with those human beings who have attained to this unitary self-consciousness resulting from the refinement of the cells. This speculation is very interesting."

The Western Christian Advocate:

"The question of immortality does not lose its interest. The volume under review is an attempt at a most comprehensive study of the question. The author seeks to enter all realms of knowledge, and experience where light may be gained, and says that he shrinks not from the truths discovered. In a spirit of scientific enquiry he knocks at the door of nature, human experience, philosophy, science, history, and religion, and is satisfied only with an entrance and a careful examination of all these realms. Beginning with the antiquity of man's faith, he follows the evolution of this faith in immortality through the centuries down to the time of Christ. Shifting then from the historical and experimental phrase of the subject, he enters the philosophical and the scientific realm and seeks to bring their message to bear upon the problem. . . . We do not hesitate to say that to the Christian student who seeks light from whatever source on the problem of immortality, the book will prove of value because it presents much that is truly original, thought-stimulating and pertinent to the problem. It probably brings together more material shedding light on the problem than any similar work."

Zion's Herald:

"The author of this book does not profess to have advanced an argument which finally proves the immortality of the human soul; but he has made a strong approach towards it. He started from a basis of much skepticism, not to give it a harsher name, with a sincere desire for the truth. He comes out with a very assured faith, much surprised at the result. He feels and has a right to feel, that 'his deductions are strictly logical and grounded on accurate and indisputable scientific data. It is a long process. . . . The author discusses the nature of matter, the generation of instinct, psychogeny or soul generation, the origin of organic life, physical origin of self-con-

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sciousness, identity of substance, energy and spirit, physical and psychical immortality, and similar difficult questions. And, there is another extensive treatise to follow, which will traverse the discoveries of modern research pertaining to the existence and powers of the 'Psychic Basis of the Soul' or the 'Unconscious Self.' We shall look for it with interest."

Times Saturday Review of Books:

"A 'Modern Light on Immortality.' The problem of the Future State on Evidence Derived from All Sources, discussed by Mr. Frank (here follows a column and a half review closing with:) There is much in this volume which will stimulate rational thought and enquiry even if it falls short of offering anything positive. The author is to be commended for industry, impartiality and the generally successful way in which he handles his facts."

Editorial from another edition of the Times Saturday Review:

ROBERT ELSMERE ANTICIPATED

"The story of the minister driven to doubt by scientific study was commonplace in the United States long before the day of 'Robert Elsmere,' and Henry Frank, the author of 'Modern Light on Immortality,' lived it while he was yet one of the youngest members of the Minnesota Conference of the Methodist Episcopal Church, and was publicly informed by his Bishop that he could not be allowed to deliver himself of such ideas as he had come to entertain. He left the Methodist Episcopal Church and vainly tried to remain content with the creed of another. Before abandoning the effort he came to New York, founded a congregation of the most liberal nature, and served it for ten years. He found, however, that his people, being under no especial obligation to believe anything, were desirous of being assured on new grounds of the immortality of the soul, and set himself to look for them, not expecting to find any. History, exhaustively examined, left both him and his congregation where it found them; science compelled him to accept the disputed doctrine, and his book tells the story of his quest."

Providence Journal:

"Mr. Frank approaches the theory of immortality in a markedly original way. He attempts to ignore altogether tradition and to look at history and philosophy with unprejudiced eyes. Some of his conclu-

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sions are rather startling. . . In his survey of immortality and modern science, Mr. Frank gives us some interesting conclusions. His knowledge is considerable and his ingenuity is even greater. . . But to give unqualified approval to all his deductions would be impossible. Nevertheless, the book is in many ways a notable contribution to original study of the problem of immortality; it is at all events worth reading. . ."

From Edwin Markham's review in the New York American and the San Francisco Examiner:

"'Modern Light on Immortality,' by Henry Frank, is a book that will be a consolation and a stay to thousands. It is based on the affirmation that science supports the fact of immortality of the human soul. Mr. Frank, putting out of his mind all the assertions of the ancient scriptures of all nations, searches through nature and human experience for some underlying principle that will throw light on the problem. He probes all religions, all philosophies, seeking for the grounds and evidences of immortality, and then examines them under the sharp light of modern experimental science. . . His scholarly, thoughtful argument is well worth study, and will aid many restless seekers after truth to find the peace that they cannot find in the old, simple act of faith. . . His conclusions will be found highly suggestive to all thinking minds, and highly consoling to all who cling to the nobler hopes of religion. I wish the book a million readers."

Universalist Leader:

"This is the book of one who has arrived at doubt concerning the entire Gospel story of the resurrection, and is searching for some other basis for faith in immortality. Henry Frank is a seeker. He joined long ago those who never pitch their tent permanently. They have taken to the open road. Whatever Mr. Frank says or writes is vital and stimulating. . . After elaborately uncovering what he believes to be the weak spots in the Biblical proof of immortality, the author proceeds just as elaborately to unfold what he believes to be the scientific proof of immortality. Whether he succeeds in making this change of base must be left to the readers of his book. . . Certainly, if one is looking for an earnest, scholarly discussion of the subject from one who has the mind of the critic and the instinct of worship, he could

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go much farther and fare much worse than follow Henry Frank in his search for the clue to immortality."

Reformed Church Messenger:

"This book is undoubtedly an able one. It is admittedly incomplete, and, extended as this volume is, it is to be supplemented by 'another volume which shall traverse the discoveries of modern research pertaining to the existence of the Soul or the Unconscious Self.' A monist is the writer, a warm disciple of Haeckel, accepting most of his positions, but he rejects the latter's materialism, and throughout is not only profoundly earnest but is equally reverent. . . . Altogether, it is a notable book and one which those who prefer to face as best they can and not to shun the problems of existence, will, in spite of a few relapses and imperfections, very heartily delight in."

Light, (London, Eng.):

"We must do Mr. Frank the justice to say that his 'Excursion into historical research and scientific discovery,' is devised on a scale and carried out with a thoroughness that must command attention and respect. His book is valuable in many ways, but is especially so as a fine exposition of 'Monism' on a loftier and larger stage than Haeckel's, and his special merit is that he does not so much oppose and reply to Haeckel as expound him and give him a hand up. He fully recognises that it is a real universe, that Nature is altogether a unity, and that what we call the soul is the 'organized expression, through certain highly developed physiological avenues, of that universal energy which everywhere exists as impersonal and semi-intelligent,' and which in man becomes self-conscious and supremely intelligent. . . . It is well and modernly put, and it is valuable."

Chicago Post:

"It is a relief to turn to the scholarly work of Mr. Henry Frank, who goes to science for illumination on personal immortality. . . . The book may be read with profit and enjoyment on account of the stimulating quality of such an attempt. Mr. Frank shows wide reading and scientific sympathy, colored by respect to the religious consciousness. . . . He promises another book shortly which will elucidate his theory in regard to a subliminal self and its immortality. Many, however, will remain perfectly satisfied with the present volume for it undoubtedly points the way to that impersonal immortality which is satisfying to many noble minds."

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The Interior:

"This work professes to be a thorough going reinvestigation of the problem of a future life without any bias or prejudgment whatever. Traditional teachings on the subject are set aside by the author as untenable in the light of modern science. Similarly, deductions of the doctrine of immortality from the Bible are left behind as of little value, since the author has ceased to believe in the reality of divine revelation. Accordingly, the only source of approach to the truth left is that pursued by the scientists. An investigation of this sort has both a negative and a positive side, and the author gives both of these. The author seems to adopt Haeckel's monism, Darwin's theory of natural selection, Lord Kelvin's views as to the ultimate nature of matter, and in fact, almost every recent formulation regarding life, force and personality, combining all these into the theory of the soul and asserting upon the basis of this synthesis human immortality. It will be unnecessary to pass judgment regarding the validity of the synthesis. Stranger things have sometimes ultimately resulted in a successful, harmonious, philosophical system."

Twentieth Century Magazine:

"This volume is thoroughly rationalistic. The author views the whole subject through the glasses of the modern materialistic physical scientist, and for this reason his final conclusions are as interesting as they are surprising. In reading the work one cannot fail to be impressed with the fact that Mr. Frank is above all else a truth-seeker. He is thoroughly sincere and absolutely fearless. His writings display the splendid enthusiasm and tireless industry of the modern scientific scholar in studying the history of the past, the philosophical concepts of the ages and the deductions and generalizations of the master physical scientists of our day; and if we find it impossible at times to agree with his conclusions it is because in the study of the mighty problems of man, the universe and the potential immortality of the soul, we reason from different premises. . . . It is a great book and one that is bound to challenge the thoughtful attention of thousands of persons who have been dazzled and won over by the modern physical scientists who have so wonderfully enriched the thought of the world."

The Open Court:

"In this carefully prepared volume Mr. Frank. . .

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presents a thorough study of the immortality problem which he has finally succeeded in solving to his own satisfaction. Led by the insistence of his congregation not to neglect the subject, but to deal with it as he has with other themes from a scientific and rational point of view, Mr. Frank consented to take them with him along the path of inquiry. . . . Beginning almost with the inauguration of human thought at the dawn of civilization he attempts to set forth the actual state of the human mind with reference to its oft illusive dream."

The Living Church:

"The author of this remarkable book, having, as he claims, divested himself of every religious belief and theological restriction, undertakes the stupendous task of weighing all evidence bearing upon the popular belief in human immortality with a view of arriving at an independent and unprejudiced conclusion for himself. He traverses the whole range of nature and human experience, he considers and analyzes all religious and philosophical beliefs, ancient and modern. Finally, he studies the problem in the light of the most recent experimental science and so he arrives at his conclusion."

The United Presbyterian:

"Of the author's ability, industry and sincerity, there can be no doubt. His book is a serious and sincere attempt at a modern solution of the ancient problem. . . . While admiring the candor which characterizes the discussion, we dissent most emphatically from the author's positions set forth in chapters ten and sixteen, inclusive, Part I, in which he undertakes to account for the Jewish and Christian conceptions of an afterlife. In this part he seems to discard divine revelation entirely and explains the doctrine of immortality in terms of an enthusiastic Jewish chiliasm or of pagan naturalism. . . . Paul's doctrine of the resurrection was based on the Eleusinian and Dionysian mysteries. Elsewhere, by a stroke of genius he solves a riddle that has perplexed all commentators and exegetes, ancient and modern, by affirming that Peter was Paul's 'thorn in the flesh.' He also seeks to prove that Peter regarded Paul as 'Simon Magus.'"

Brooklyn Times:

"This book is especially timely and will be read with pleasure. . . . It is a remarkable work in temper, disposition, in a certain clarity of idea, and in manner

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of presentation. It is rare to see a man of ecclesiastic training pursuing a subject with so admirable a scientific disposition and temper and in so unbiased a fashion as does Dr. Frank in the present volume. . . The book is optimistic. It is the investigation into science that is surprising. It would be too bad to tell what the author finds; suffice it to say what he finds is astonishing. . . His only wish is to seek and to find the truth. Has he? We leave it to the reader. Our advice is that you read the book. You will find it worth while."

Utica Press:

"That the soul is to be rewarded with immortality is convincing to the author of this latest work on the subject. He is modest enough to feel uncertain regarding his influence on other thinkers. Beyond the argument for the indestructibility of the soul he does not venture, for these essays are based on the discoveries of science alone and she has dared conjecture nothing concerning the future life of man. . . Mr. Frank's original conclusions are worthy of a careful study and the results of further research, which he promises in a future volume, are eagerly anticipated."

Glasgow Herald, (Scotland):

"The work, 'Modern Light on Immortality,' must have involved an immense amount of research, both historical and scientific, and though the author's claim to be the only writer who has 'traversed the entire region' may perhaps be questioned, it must be admitted that in tracing the belief in immortality from primeval times downward, he has brought within the compass of a volume of moderate size a mass of information which is likely to prove of great value to those who come after him. But it is not on his historical studies but on his scientific investigations that the author bases his conclusions. . . These views are interesting as the result of lengthened and painstaking inquiry and as the final judgment of a man who set forth from a definitely skeptical standpoint. Whether or not they are accepted by Mr. Frank's congregation, they will not improbably meet with keen criticism alike from the orthodox and the scientific standpoint."

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